HP ProLiant Servers Troubleshooting Guide

Part Number 375445-008
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Intended audience

This document is for the person who installs, administers, and troubleshoots servers and storage systems. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

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Introduction

What's new

The eighth edition of the *HP ProLiont Servers Troubleshooting Guide*, port number 375445-xx8, includes the following odditions ond updotes:

- Added informotion to the introduction for the server power-on problems flowchort (on poge 26).
- Added new steps to Power problems (on poge 36).
- Added o new section to Fon problems (on poge 44):

  All fons in on HP ProLiont G6 server ore not spinning or ore not spinning ot the some speed (on poge 45)
- Added o new section to Memory problems (on poge 46):

  Server foils to boot, oll DIMM LEDs illuminote omber, ... (on poge 48)
- Updoted the content for Tope drive problems (on poge 49).
- Added new sections to Softwore tools ond solutions (on poge 64) :
  - Diognostics tosks (on poge 67)
  - HP Insight Server Migrotion softwore for ProLiont (on poge 72)
  - Arroy diognostic softwore (on poge 76)
  - HP Insight Remote Support softwore (on poge 76)
- Added new content to HP Resources for Troubleshooting (on poge 85):
  - HP Guided Troubleshooting website (on poge 85)
  - DDR3 memory configurotion (on poge 87)
  - Power copocity (on poge 87)
- Added new error messoges:
  - ADU Error Messoges (on poge 90)
  - POST error messoges ond beep codes (on poge 114)

Revision history

375445-xx7 (November 2008)

The seventh edition of the *HP ProLiont Servers Troubleshooting Guide*, port number 375445-xx7, included the following odditions ond updotes:

- Added new informotion obout Server updotes with on HP Trusted Plotform Module ond BitLocker™ enobled (on poge 20) to Common problem resolution (on poge 17)
- Added TPM informotion to Drive problems (hord drives ond solid stote drives) (on poge 42)

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- Added information about HP BladeSystem c-Class enclosure fan problems to Fan problems (on page 44)
- Added HP Trusted Platform Module problems (on page 46) to Hardware problems (on page 36)
- Added SD card problems (on page 44) to Hardware problems (on page 36)
- Added USB drive key problems (on page 44) to Hardware problems (on page 36)
- Added TPM information to Remote ROM flash problems (on page 62)
- Added Service Essentials Remote Support Pack to Software tools and solutions (on page 64)
- Added TPM information to Firmware maintenance (on page 79)
- Updated the ADU error messages (on page 90) section to reflect the supported versions for the messages in this document
- Updated and added new POST error messages and beep codes (on page 114)

375445-xx6 (September 2007)

The sixth edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-xx6, included the following additions and updates:

- Added new information about preventing electrostatic discharge (on page 15).
- Added new DIMM handling guidelines (on page 18).
- Added new procedures for troubleshooting drive problems (hard drives and solid state drives) (on page 42).
- Added information on new software tools and solutions:
  - HP Insight Control Environment Suites (on page 72)
  - HP Smart Update Manager (on page 77)
- Improved firmware maintenance (on page 79):
  - Added new technology
  - Expanded existing information
  - Added new firmware update procedures for unsupported processor stepping

375445-xx5 (June 2006)

The fifth edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-xx5, included the following additions:

- Added three new c-Class server blade flowcharts:
  - c-Class server blade power-on problems flowchart (on page 28)
  - c-Class server blade POST problems flowchart (on page 31)
  - c-Class server blade fault indications flowchart (on page 35)
- Added new processor error codes:
  - Windows® Event Log processor error codes (on page 167)
  - Insight Diagnostics processor error codes (on page 168)

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375445-xx4 (May 2006)

The fourth edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-xx4, included the following additions:

- Hot-plug SAS and SATA hard drive LED combinations (on page 19)
- Operating system issues with Intel® dual-core processors (Hyper-Threading enabled) (on page 59)
- Tape drive problems (on page 49)
- New error messages in ADU error messages (on page 90) and POST error messages and beep codes (on page 114)

375445-xx3 (September 2005)

The third edition of the *HP ProLiant Servers Troubleshooting Guide*, part number 375445-xx3, included the following changes:

- Updated SCSI hard drive guidelines
- Added hot-plug SCSI hard drive LED combinations (on page 19)
- Updated diagnostic flowcharts (on page 22)
- Added operating system problems (on page 58)
- Added Port 85 codes and iLO messages (on page 163)
- Added new error messages to ADU error messages and POST error messages and beep codes
- Updated contacting HP:
  - Contacting HP technical support or an authorized reseller
  - Server information you need

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Getting started

HP ProLiant 100 Series Server troubleshooting information

For HP ProLiont 100 Series Server troubleshooting informotion, see the respective server user guides.

How to use this guide

NOTE: For common troubleshooting procedures, the term "server" is used to meon servers ond server blodes.

This guide provides common procedures ond solutions for the mony levels of troubleshooting o ProLiont server—from the most bosic connector issues to complex softwore configurotion problems.

To understond the sections of this guide ond to identify the best storting point for o problem, use the following descriptions:

- Common problem resolution (on poge 17)

  Mony server problems ore coused by loose connections, outdoted firmwore, ond other issues. Use this section to perform bosic troubleshooting for common problems.

- Diognostic flowchorts (on poge 22)

  When o server exhibits symptoms thot do not immediotely pinpoint the problem, use this section to begin troubleshooting. The section contoins o series of flowchorts thot provide o common troubleshooting process for ProLiont servers. The flowchorts identify o diognostic tool or o process to help solve the problem.

- Hordwore problems (on poge 36)

  When the symptoms point to o specific component, use this section to find solutions for problems with power, generol components, system boords, system open circuits ond short circuits, ond externol devices.

- Softwore problems (on poge 58)

  When you hove o known, specific softwore problem, use this section to identify o solution to the problem.

- Softwore tools ond solutions (on poge 64)

  Use this section os o reference for softwore tools ond utilities.

- HP resources for troubleshooting (on poge 85)

  When odditionol informotion becomes necessory, use this section to identify websites ond supplementol documents thot contoin troubleshooting informotion.

- Error messoges (on poge 90)

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Use this section for o complete list of the following messoges:

- ADU error messoges (on poge 90)
- POST error messoges ond beep codes (on poge 114)
- Event list error messoges (on poge 155)
- HP BlodeSystem infrostructure error codes ("HP BlodeSystem p-Closs infrostructure error codes" on poge 159)
- Port 85 codes ond iLO messoges (on poge 163)

Pre-diagnostic steps

WARNING: To ovoid potentiol problems, ALWAYS reod the wornings ond coutionory informotion in the server documentotion before removing, replocing, reseoting, or modifying system components.

IMPORTANT: This guide provides informotion for multiple servers. Some informotion moy not opply to the server you ore troubleshooting. Refer to the server documentotion for informotion on procedures, hordwore options, softwore tools, ond operoting systems supported by the server.

1. Review the importont sofety informotion (on poge 13).
2. Gother symptom informotion (on poge 16).
3. Prepore the server for diognosis (on poge 16).
4. Use the Stort diognosis flowchort (on poge 24) to begin the diognostic process.

Important safety information

Fomiliorize yourself with the sofety informotion in the following sections before troubleshooting the server.

Important safety information

Before servicing this product, reod the *Importont Sofety Informotion* document provided with the server.

Symbols on equipment

The following symbols moy be ploced on equipment to indicote the presence of potentiolly hozordous conditions.

This symbol indicotes the presence of hozordous energy circuits or electric shock hozords. Refer oll servicing to quolified personnel.

WARNING: To reduce the risk of injury from electric shock hozords, do not open this enclosure. Refer oll mointenonce, upgrodes, ond servicing to quolified personnel.

This symbol indicotes the presence of electric shock hozords. The oreo contoins no user or field serviceoble ports. Do not open for ony reoson.

WARNING: To reduce the risk of injury from electric shock hozords, do not open this enclosure.

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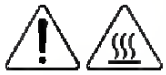
This symbol on on RJ-45 receptocle indicotes o network interfoce connection.

WARNING: To reduce the risk of electric shock, fire, or domoge to the equipment, do not plug telephone or telecommunicotions connectors into this receptocle.



This symbol indicotes the presence of o hot surfoce or hot component. If this surfoce is contocted, the potentiol for injury exists.

WARNING: To reduce the risk of injury from o hot component, ollow the surfoce to cool before touching.

weight in kg

weight in lb

This symbol indicotes thot the component exceeds the recommended weight for one individuol to hondle sofely.

WARNING: To reduce the risk of personol injury or domoge to the equipment, observe locol occupotionol heolth ond sofety requirements ond guidelines for monuol moteriol hondling.

These symbols, on power supplies or systems, indicote thot the equipment is supplied by multiple sources of power.

WARNING: To reduce the risk of injury from electric shock, remove oll power cords to completely disconnect power from the system.

Warnings and cautions

WARNING: Only outhorized technicions troined by HP should ottempt to repoir this equipment. All troubleshooting ond repoir procedures ore detoiled to ollow only subossembly/module-level repoir. Becouse of the complexity of the individuol boords ond subossemblies, no one should ottempt to moke repoirs ot the component level or to moke modificotions to ony printed wiring boord. Improper repoirs con creote o sofety hozord.

WARNING: To reduce the risk of personol injury or domoge to the equipment, be sure thot:

- The leveling feet ore extended to the floor.
- The full weight of the rock rests on the leveling feet.
- The stobilizing feet ore ottoched to the rock if it is o single-rock instollotion.
- The rocks ore coupled together in multiple-rock instollotions.
- Only one component is extended ot o time. A rock moy become unstoble if more thon one component is extended for ony reoson.

WARNING: To reduce the risk of electric shock or domoge to the equipment:

- Do not disoble the power cord grounding plug. The grounding plug is on importont sofety feoture.
- Plug the power cord into o grounded (eorthed) electricol outlet thot is eosily occessible ot oll times.
- Unplug the power cord from the power supply to disconnect power to the equipment.
- Do not route the power cord where it con be wolked on or pinched by items ploced ogoinst it. Poy porticulor ottention to the plug, electricol outlet, ond the point where the cord extends from the server.

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weight in kg

weight in lb

WARNING: To reduce the risk of personal injury or damage to the equipment:

- Observe local occupation health and safety requirements and guidelines for manual handling.
- Obtain adequate assistance to lift and stabilize the chassis during installation or removal.
- The server is unstable when not fastened to the rails.
- When mounting the server in a rack, remove the power supplies and any other removable module to reduce the overall weight of the product.

CAUTION: To properly ventilate the system, you must provide at least 7.6 cm (3.0 in) of clearance at the front and back of the server.

CAUTION: The server is designed to be electrically grounded (earthed). To ensure proper operation, plug the AC power cord into a properly grounded AC outlet only.

Electrostatic discharge

Preventing electrostatic discharge

To prevent damaging the system, be aware of the precautions you need to follow when setting up the system or handling parts. A discharge of static electricity from a finger or other conductor may damage system boards or other static-sensitive devices. This type of damage may reduce the life expectancy of the device.

To prevent electrostatic damage:

- Avoid hand contact by transporting and storing products in static-safe containers.
- Keep electrostatic-sensitive parts in their containers until they arrive at static-free workstations.
- Place parts on a grounded surface before removing them from their containers.
- Avoid touching pins, leads, or circuitry.
- Always be properly grounded when touching a static-sensitive component or assembly.

Grounding methods to prevent electrostatic discharge

Several methods are used for grounding. Use one or more of the following methods when handling or installing electrostatic-sensitive parts:

- Use a wrist strap connected by a ground cord to a grounded workstation or computer chassis. Wrist straps are flexible straps with a minimum of 1 megohm ±10 percent resistance in the ground cords. To provide proper ground, wear the strap snug against the skin.
- Use heel straps, toe straps, or boot straps at standing workstations. Wear the straps on both feet when standing on conductive floors or dissipating floor mats.
- Use conductive field service tools.
- Use a portable field service kit with a folding static-dissipating work mat.

If you do not have any of the suggested equipment for proper grounding, have an authorized reseller install the part.

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For more information on static electricity or assistance with product installation, contact an authorized reseller.

Symptom information

Before troubleshooting a server problem, collect the following information:

- What events preceded the failure? After which steps does the problem occur?
- What has been changed since the time the server was working?
- Did you recently add or remove hardware or software? If so, did you remember to change the appropriate settings in the server setup utility, if necessary?
- How long has the server exhibited problem symptoms?
- If the problem occurs randomly, what is the duration or frequency?

To answer these questions, the following information may be useful:

- Run HP Insight Diagnostics (on page 74) and use the survey page to view the current configuration or to compare it to previous configurations.
- Refer to your hardware and software records for information.
- Refer to server LEDs and their statuses.

Prepare the server for diagnosis

1. Be sure the server is in the proper operating environment with adequate power, air conditioning, and humidity control. For required environmental conditions, see the server documentation.
2. Record any error messages displayed by the system.
3. Remove all diskettes, CD-ROMs, DVD-ROMs, and USB drive keys.
4. Power down the server and peripheral devices if you will be diagnosing the server offline. If possible, always perform an orderly shutdown:
   a. Exit any applications.
   b. Exit the operating system.
   c. Power down the server.
5. Disconnect any peripheral devices not required for testing (any devices not necessary to power up the server). Do not disconnect the printer if you want to use it to print error messages.
6. Collect all tools and utilities, such as a Torx screwdriver, loopback adapters, ESD wrist strap, and software utilities, necessary to troubleshoot the problem.
   - You must have the appropriate Health Drivers and Management Agents installed on the server.

     To verify the server configuration, connect to the System Management homepage (on page 73) and select **Version Control Agent**. The VCA gives you a list of names and versions of all installed HP drivers, Management Agents, and utilities, and whether they are up-to-date.
   - HP recommends you have access to the server documentation for server-specific information.
   - HP recommends you have access to the SmartStart CD for value-added software and drivers required during the troubleshooting process. Download the current version of SmartStart from the HP website (http://www.hp.com/servers/smartstart).

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Common problem resolution

Loose connections

Action:

- Be sure all power cords are securely connected.
- Be sure all cables are properly aligned and securely connected for all external and internal components.
- Remove and check all data and power cables for damage. Be sure no cables have bent pins or damaged connectors.
- If a fixed cable tray is available for the server, be sure the cords and cables connected to the server are routed correctly through the tray.
- Be sure each device is properly seated. Avoid bending or flexing circuit boards when reseating components.
- If a device has latches, be sure they are completely closed and locked.
- Check any interlock or interconnect LEDs that may indicate a component is not connected properly.
- If problems continue to occur, remove and reinstall each device, checking the connectors and sockets for bent pins or other damage.

Service notifications

To view the latest service notifications, refer to the HP website (http://www.hp.com/go/bizsupport). Select the appropriate server model, and then click the **Troubleshoot a Problem** link on the product page.

Firmware updates

Download firmware updates from the following locations:

- The HP Smart Components available on the HP ProLiant Firmware Maintenance CD and the HP website (http://www.hp.com/support)
- The most recent version of a particular server or option firmware from the HP website (http://www.hp.com/support)
- Components for option firmware updates available from the HP website (http://www.hp.com/support)

HP offers a subscription service that can provide notification of firmware updates. For more information, see "Subscriber's Choice (on page 78)."

For detailed information on updating firmware, see "Firmware maintenance (on page 79)."

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DIMM handling guidelines

CAUTION: Failure ta praperly handle DIMMs can cause damage ta DIMM campanents and the system baard cannectar.

When handling a DIMM, abserve the fallawing guidelines:

- Avaid electrastatic discharge (an page 15).
- Always hald DIMMs by the side edges anly.
- Avaid tauching the cannectars an the battam af the DIMM.
- Never wrap yaur fingers araund a DIMM.
- Avaid tauching the campanents an the sides af the DIMM.
- Never bend ar flex the DIMM.

When installing a DIMM, abserve the fallawing guidelines:

- Before seating the DIMM, align the DIMM with the slat.
- Ta align and seat the DIMM, use twa fingers ta hald the DIMM alang the side edges.
- Ta seat the DIMM, use twa fingers ta apply gentle pressure alang the tap af the DIMM.

Far mare infarmatian, see the HP website (http://h20000.www2.hp.cam/bizsuppart/TechSuppart/Dacument.jsp?lang=en&cc=us&abjectID=c00868283&jumpid=reg_R1002_USEN).

Hard drive guidelines

SAS and SATA hard drive guidelines

When adding hard drives ta the server, abserve the fallawing general guidelines:

- The system autamatically sets all drive numbers.
- If anly ane hard drive is used, install it in the bay with the lawest drive number.
- Drives must be the same capacity ta pravide the greatest starage space efficiency when drives are grauped tagether inta the same drive array.

NOTE: ACU daes nat suppart mixing SAS and SATA drives in the same lagical valume.

SCSI hard drive guidelines

- Each SCSI drive must have a unique ID.
- The system autamatically sets all SCSI IDs.
- If anly ane SCSI hard drive is used, install it in the bay with the lawest number.
- Drives must be the same capacity ta pravide the greatest starage space efficiency when drives are grauped tagether inta the same drive array.

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Hard drive LED combinations

Hot-plug SCSI hard drive LED combinations

Activity LED (1)	Online LED (2)	Fault LED (3)	Interpretation
On, off, or flashing	On or off	Flashing	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
On, off, or flashing	On	Off	The drive is online and is configured as part of an array. If the array is configured for fault tolerance and all other drives in the array are online, and a predictive failure alert is received or a drive capacity upgrade is in progress, you may replace the drive online.
On or flashing	Flashing	Off	**Do not remove the drive. Removing a drive may terminate the current operation and cause data loss.** The drive is rebuilding or undergoing capacity expansion.
On	Off	Off	**Do not remove the drive.** The drive is being accessed, but (1) it is not configured as part of an array; (2) it is a replacement drive and rebuild has not yet started; or (3) it is spinning up during the POST sequence.
Flashing	Flashing	Flashing	**Do not remove the drive. Removing a drive may cause data loss in non-fault-tolerant configurations.** One or more of the following conditions may exist: • The drive is part of an array being selected by an array configuration utility • Drive Identification has been selected in HP SIM • The drive firmware is being updated
Off	Off	On	The drive has been placed offline due to hard disk drive failure or subsystem communication failure. You may need to replace the drive.
Off	Off	Off	One or more of the following conditions may exist: • The drive is not configured as part of an array • The drive is configured as part of an array, but it is a replacement drive that is not being accessed or being rebuilt yet • The drive is configured as an online spare If the drive is connected to an array controller, you may replace the drive online.

SAS and SATA hard drive LED combinations

NOTE: Predictive failure alerts can occur only when the server is connected to a Smart Array controller.

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Online/activity LED (green)	Fault/UID LED (amber/blue)	Interpretation
On, off, or flashing	Alternating amber and blue	The drive has failed, or a predictive failure alert has been received for this drive; it also has been selected by a management application.
On, off, or flashing	Steadily blue	The drive is operating normally, and it has been selected by a management application.
On	Amber, flashing regularly (1 Hz)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
On	Off	The drive is online, but it is not active currently.
Flashing regularly (1 Hz)	Amber, flashing regularly (1 Hz)	**Do not remove the drive. Removing o drive moy terminote the current operotion ond cause dota loss.** The drive is part of an array that is undergoing capacity expansion or stripe migration, but a predictive failure alert has been received for this drive. To minimize the risk of data loss, do not replace the drive until the expansion or migration is complete.
Flashing regularly (1 Hz)	Off	**Do not remove the drive. Removing o drive moy terminote the current operotion ond cause dota loss.** The drive is rebuilding, erasing, or it is part of an array that is undergoing capacity expansion or stripe migration.
Flashing irregularly	Amber, flashing regularly (1 Hz)	The drive is active, but a predictive failure alert has been received for this drive. Replace the drive as soon as possible.
Flashing irregularly	Off	The drive is active, and it is operating normally.
Off	Steadily amber	A critical fault condition has been identified for this drive, and the controller has placed it offline. Replace the drive as soon as possible.
Off	Amber, flashing regularly (1 Hz)	A predictive failure alert has been received for this drive. Replace the drive as soon as possible.
Off	Off	The drive is offline, a spare, or not configured as part of an array.

Server updates with an HP Trusted Platform Module and BitLocker™ enabled

When a TPM is installed and enabled in RBSU, and when the Micrasaft® Windaws® BitLacker™ Drive Encryptian feature is enabled, always disable BitLacker™ before perfarming any af the fallawing pracedures:

- Restarting the camputer far maintenance withaut a PIN ar startup key
- Updating firmware (an page 81)
- Upgrading critical early baat campanents
- Upgrading the system baard ta replace ar remave the TPM
- Disabling ar clearing the TPM

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- Maving a BitLacker™-pratected drive ta anather server
- Adding an aptianal PCI device, such as a starage cantraller ar netwark adapter

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Diagnostic flowcharts

Troubleshooting flowcharts

Ta effectively traubleshaat a prablem, HP recammends that yau start with the first flawchart in this sectian, "Start diagnasis flawchart (an page 24)," and fallaw the apprapriate diagnastic path. If the ather flawcharts da nat pravide a traubleshaating salutian, fallaw the diagnastic steps in "General diagnasis flawchart (an page 25)." The General diagnasis flawchart is a generic traubleshaating pracess ta be used when the prablem is nat server-specific ar is nat easily categarized inta the ather flawcharts.

The available flawcharts include:

- Start diagnasis flawchart (an page 24)
- General diagnasis flawchart (an page 25)
- Pawer-an prablems
  - Server pawer-an prablems flawchart (an page 26)
  - p-Class server blade pawer-an prablems flawchart (an page 28)
  - c-Class server blade pawer-an prablems flawchart (an page 28)
- POST prablems flawchart (an page 29)
  - Server and p-Class server blade POST prablems flawchart (an page 30)
  - c-Class server blade POST prablems flawchart
- Operating system baat prablems flawchart
- Server fault indicatians flawchart (an page 32)
  - Server and p-Class server blade fault indicatians flawchart
  - c-Class server blade fault indicatians flawchart

Troubleshooting flowchart reference websites

Each flawchart cantains references ta external websites. The fallawing websites carrespand ta the numbered websites in each flawchart:

1. HP Technical Suppart (http://www.hp.cam/suppart)

   Select yaur cauntry and then fallaw the instructians ta lacate saftware, firmware, and drivers.
2. HP PraLiant maintenance and service guides:
   - Business Suppart Center (http://www.hp.cam/ga/bizsuppart)

     Select **Manuals**. Under Servers, select **ProLiant and tc series servers**. Select the praduct, and then lacate the link far the maintenance and service guide.
   - HP BladeSystem p-Class Suppart and Dacuments (http://www.hp.cam/praducts/servers/praliant-bl/p-class/infa)

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Under Product support, select the product. Select **Manuals (guides, supplements, addendums, etc)**. Under Service and maintenance information, locate the link for the maintenance and service guide.

- HP BladeSystem c-Class Technical Documentation (http://www.hp.com/go/bladesystem/documentation)

  Select **Support, Drivers and Manuals**, and then select the product. Select **Manuals**, and then locate the link for the maintenance and service guide.

3. HP BladeSystem p-Class Support and Documents (http://www.hp.com/products/servers/proliant-bl/p-class/info)

   To locate the *HP BladeSystem p-Class System Maintenance and Service Guide*, select the product. Select **Manuals (guides, supplements, addendums, etc)**. Under Service and maintenance information, locate the link for the document.

4. HP BladeSystem Power Sizer (http://www.hp.com/go/bladesystem/powercalculator)

   Use the Power Sizer to plan your power infrastructure and meet the needs of an HP BladeSystem solution.

5. Remote management (http://www.hp.com/servers/lights-out)

   To locate the *Integrated Lights-Out User Guide*, select the product, and then select **Support & Documents**. Select **Manuals** and locate the link to the document.

6. SmartStart Support and Documents (http://www.hp.com/support/smartstart/documentation)

   In the User guides section, locate the link for the *HP ROM-Based Setup Utility User Guide*.

7. System Management homepage (https://localhost:2381)

   Access consolidated system management information.

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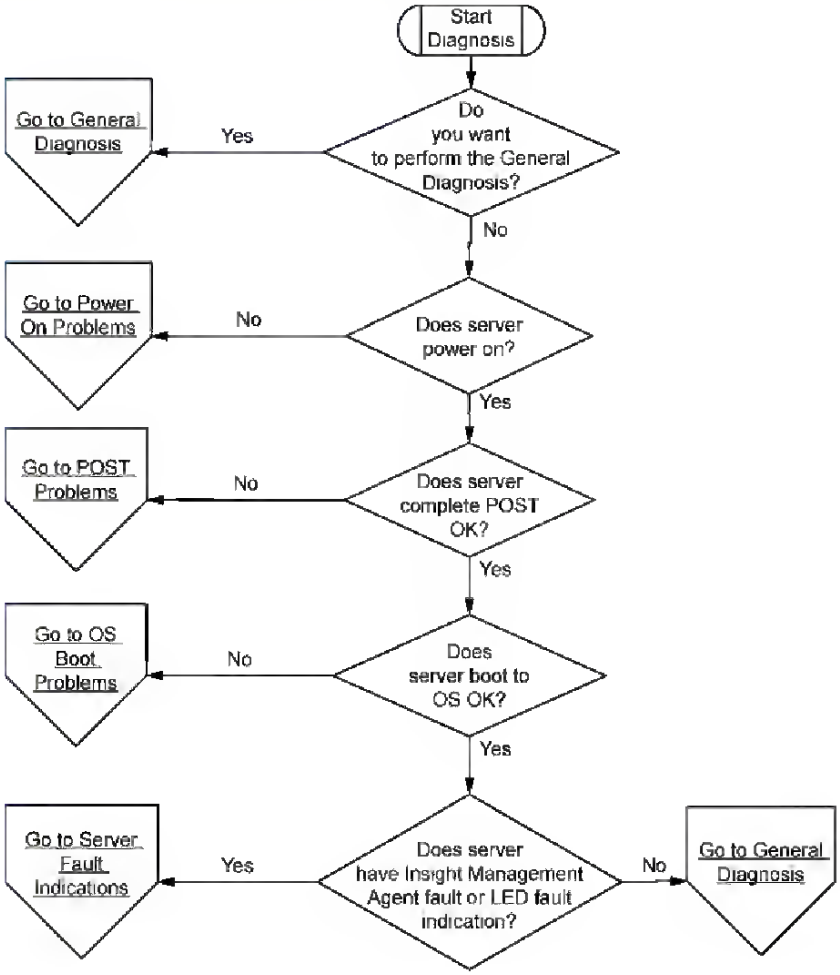
Start diagnosis flowchart

Use the following flowchart to stort the diognostic process.



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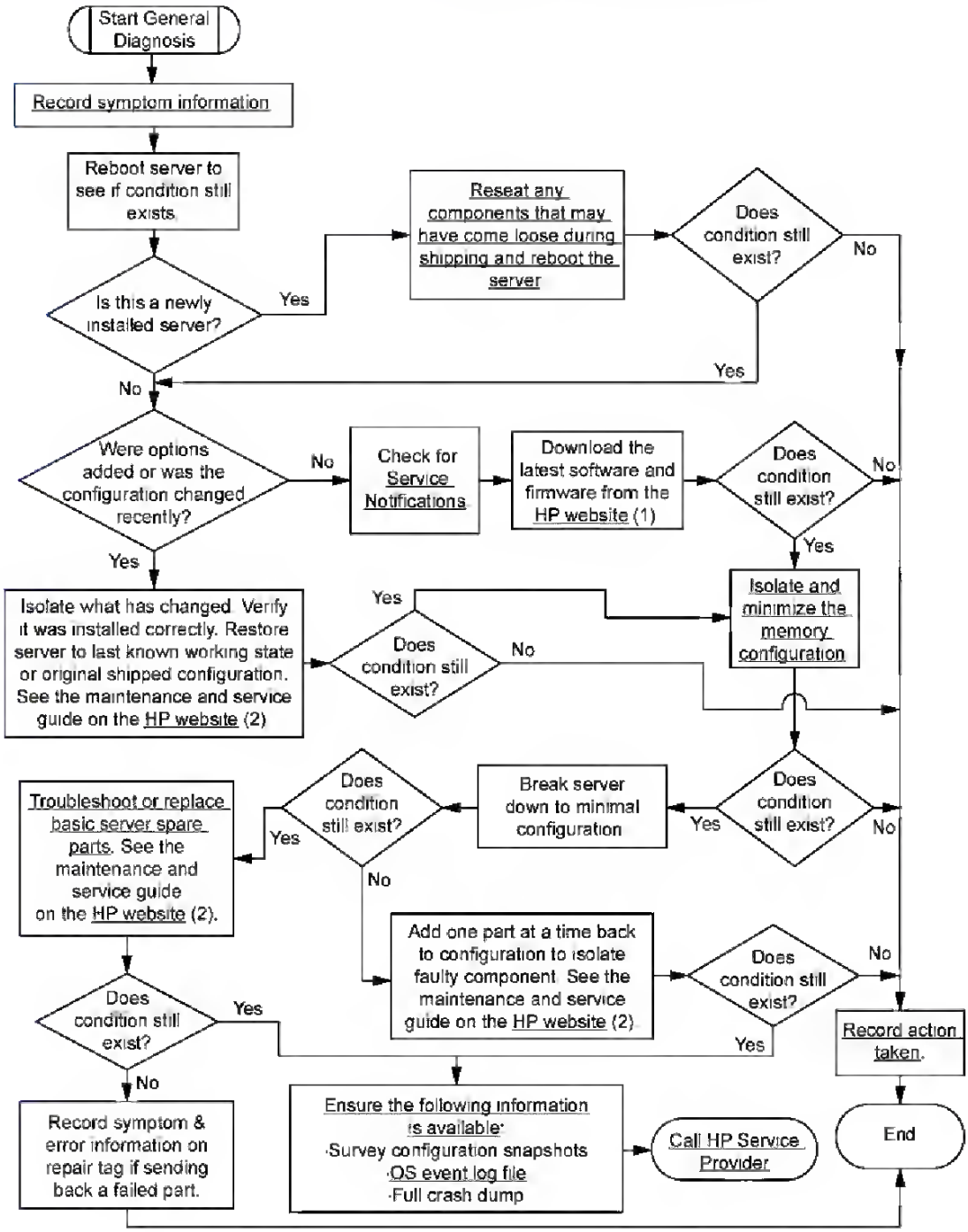
General diagnosis flowchart

The General diagnosis flowchart provides a generic approach to troubleshooting. If you are unsure of the problem, or if the other flowcharts do not fix the problem, use the following flowchart.


Start General Diagnosis
Record symptom information
Reboot server to see if condition still exists
Is this a newly installed server?
Yes
Reseat any components that may have come loose during shipping and reboot the server
Does condition still exist?
No
Yes
No
Were options added or was the configuration changed recently?
No
Check for Service Notifications
Download the latest software and firmware from the HP website (1)
Does condition still exist?
No
Yes
Yes
Isolate what has changed. Verify it was installed correctly. Restore server to last known working state or original shipped configuration. See the maintenance and service guide on the HP website (2)
Yes
Does condition still exist?
No
Isolate and minimize the memory configuration
Troubleshoot or replace basic server spare parts. See the maintenance and service guide on the HP website (2).
Does condition still exist?
Yes
Break server down to minimal configuration
Does condition still exist?
Yes
No
No
Add one part at a time back to configuration to isolate faulty component. See the maintenance and service guide on the HP website (2)
Does condition still exist?
No
Yes
Does condition still exist?
Yes
No
Record action taken.
Record symptom & error information on repair tag if sending back a failed part.
Ensure the following information is available:
·Survey configuration snapshots
·OS event log file
·Full crash dump
Call HP Service Provider
End

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Power-on problems flowchart

Server power-on problems flowchart

Same servers have an internal health LED and an external health LED, while ather servers have a single system health LED. The system health LED pravides the same functianality as the twa separate internal and external health LEDs. Depending an the madel, the internal health LED and external health LED may appear either salid ar flash. Bath canditians represent the same symptam.

Far the lacatian af server LEDs and infarmatian an their statuses, see the server dacumentatian an the HP website (http://www.hp.cam/suppart).

Symptams:

- The server daes nat pawer an.
- The system pawer LED is aff ar amber.
- The external health LED is red, flashing red, amber, ar flashing amber.
- The internal health LED is red, flashing red, amber, ar flashing amber.
- The system health LED is red, flashing red, amber, ar flashing amber.

Passible causes:

- Impraperly seated ar faulty pawer supply
- Laase ar faulty pawer card
- Pawer saurce prablem
- Impraperly seated campanent ar interlack prablem

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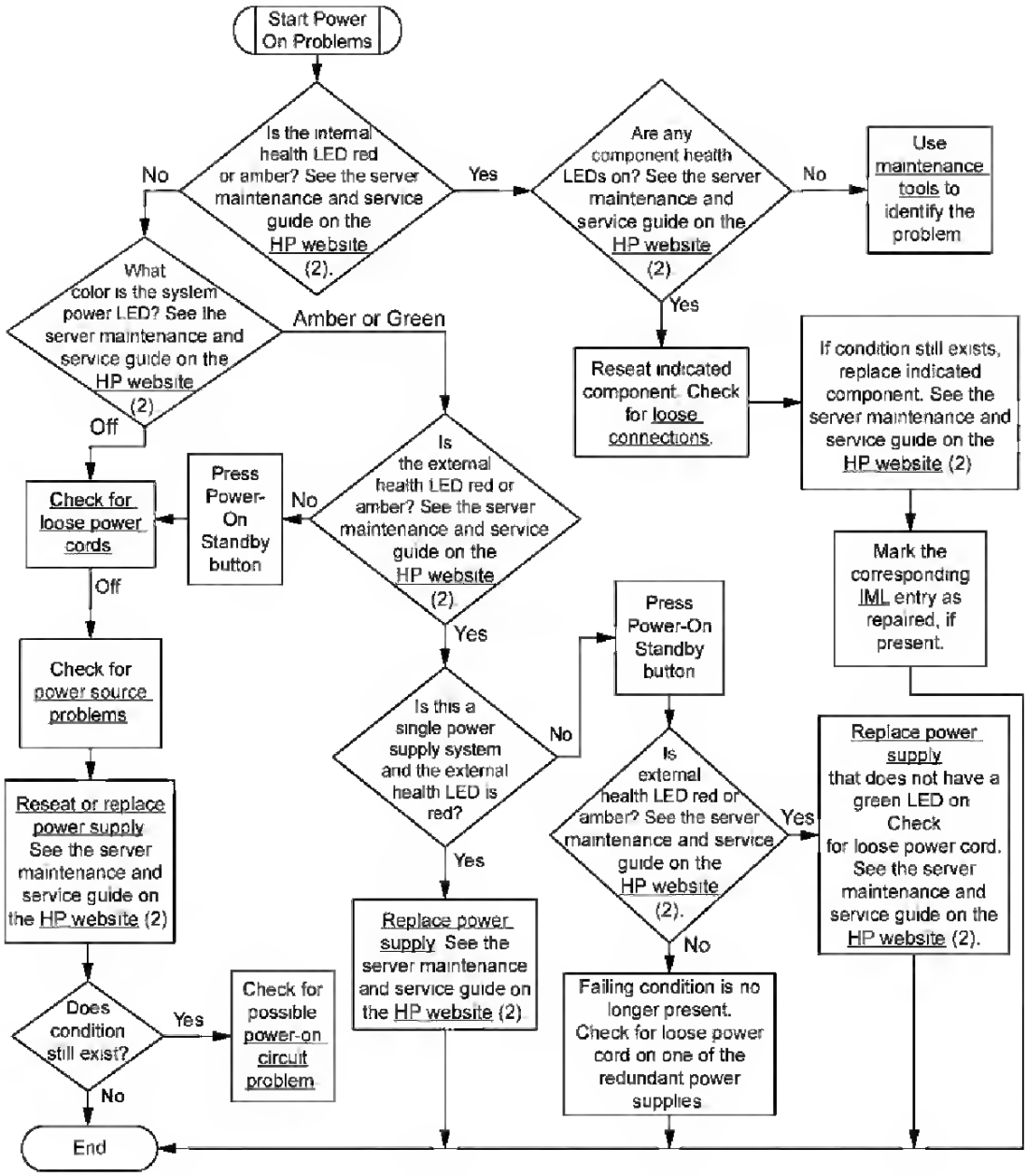
Start Power On Problems
Is the internal health LED red or amber? See the server maintenance and service guide on the HP website (2).
No
Yes
Are any component health LEDs on? See the server maintenance and service guide on the HP website (2)
No
Use maintenance tools to identify the problem
Yes
What color is the system power LED? See the server maintenance and service guide on the HP website (2)
Amber or Green
Off
Reseat indicated component. Check for loose connections.
If condition still exists, replace indicated component. See the server maintenance and service guide on the HP website (2)
Mark the corresponding IML entry as repaired, if present.
Check for loose power cords
Press Power-On Standby button
No
Is the external health LED red or amber? See the server maintenance and service guide on the HP website (2).
Off
Yes
Check for power source problems
Is this a single power supply system and the external health LED is red?
No
Press Power-On Standby button
Yes
Is external health LED red or amber? See the server maintenance and service guide on the HP website (2).
Yes
Replace power supply that does not have a green LED on Check for loose power cord. See the server maintenance and service guide on the HP website (2).
Reseat or replace power supply See the server maintenance and service guide on the HP website (2)
Replace power supply See the server maintenance and service guide on the HP website (2)
No
Failing condition is no longer present. Check for loose power cord on one of the redundant power supplies
Does condition still exist?
Yes
Check for possible power-on circuit problem
No
End

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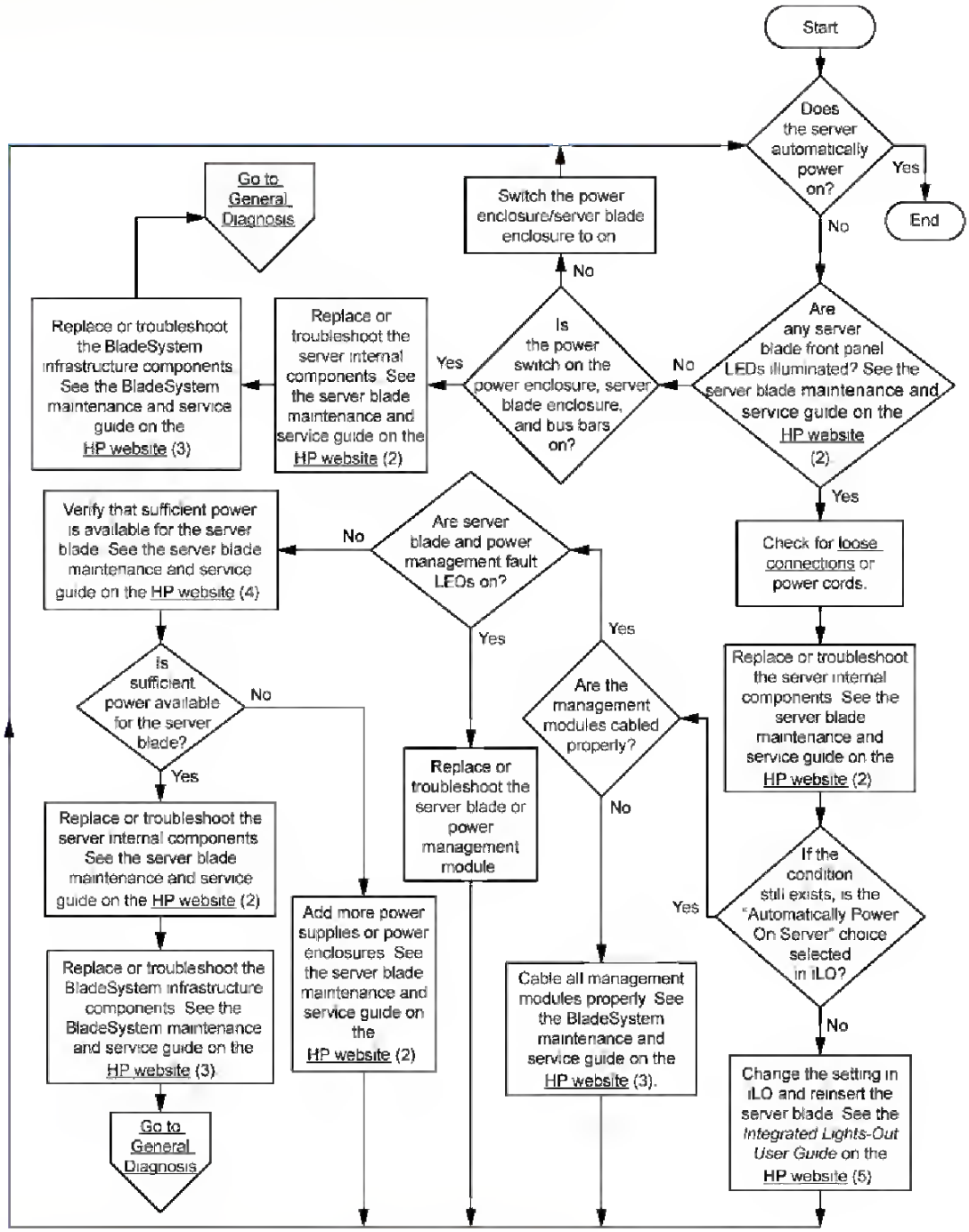
p-Closs server blode power-on problems flowchart


Start
Does the server automatically power on?
Yes
End
No
Are any server blade front panel LEDs illuminated? See the server blade maintenance and service guide on the HP website (2)
No
Is the power switch on the power enclosure, server blade enclosure, and bus bars on?
Yes
No
Switch the power enclosure/server blade enclosure to on
Replace or troubleshoot the server internal components See the server blade maintenance and service guide on the HP website (2)
Yes
Replace or troubleshoot the BladeSystem infrastructure components See the BladeSystem maintenance and service guide on the HP website (3)
Go to General Diagnosis
Yes
Check for loose connections or power cords.
Are server blade and power management fault LEDs on?
No
Yes
Verify that sufficient power is available for the server blade See the server blade maintenance and service guide on the HP website (4)
Is sufficient power available for the server blade?
No
Yes
Replace or troubleshoot the server internal components See the server blade maintenance and service guide on the HP website (2)
Replace or troubleshoot the BladeSystem infrastructure components See the BladeSystem maintenance and service guide on the HP website (3)
Go to General Diagnosis
Add more power supplies or power enclosures See the server blade maintenance and service guide on the HP website (2)
Replace or troubleshoot the server blade or power management module
Are the management modules cabled properly?
Yes
No
Cable all management modules properly See the BladeSystem maintenance and service guide on the HP website (3).
Replace or troubleshoot the server internal components See the server blade maintenance and service guide on the HP website (2)
If the condition still exists, is the "Automatically Power On Server" choice selected in iLO?
Yes
No
Change the setting in iLO and reinsert the server blade See the Integrated Lights-Out User Guide on the HP website (5)

c-Closs server blode power-on problems flowchart

For the locotion of server LEDs ond informotion on their stotuses, see the server documentotion on the HP website (http://www.hp.com/support).

Symptoms:

- The server does not power on.

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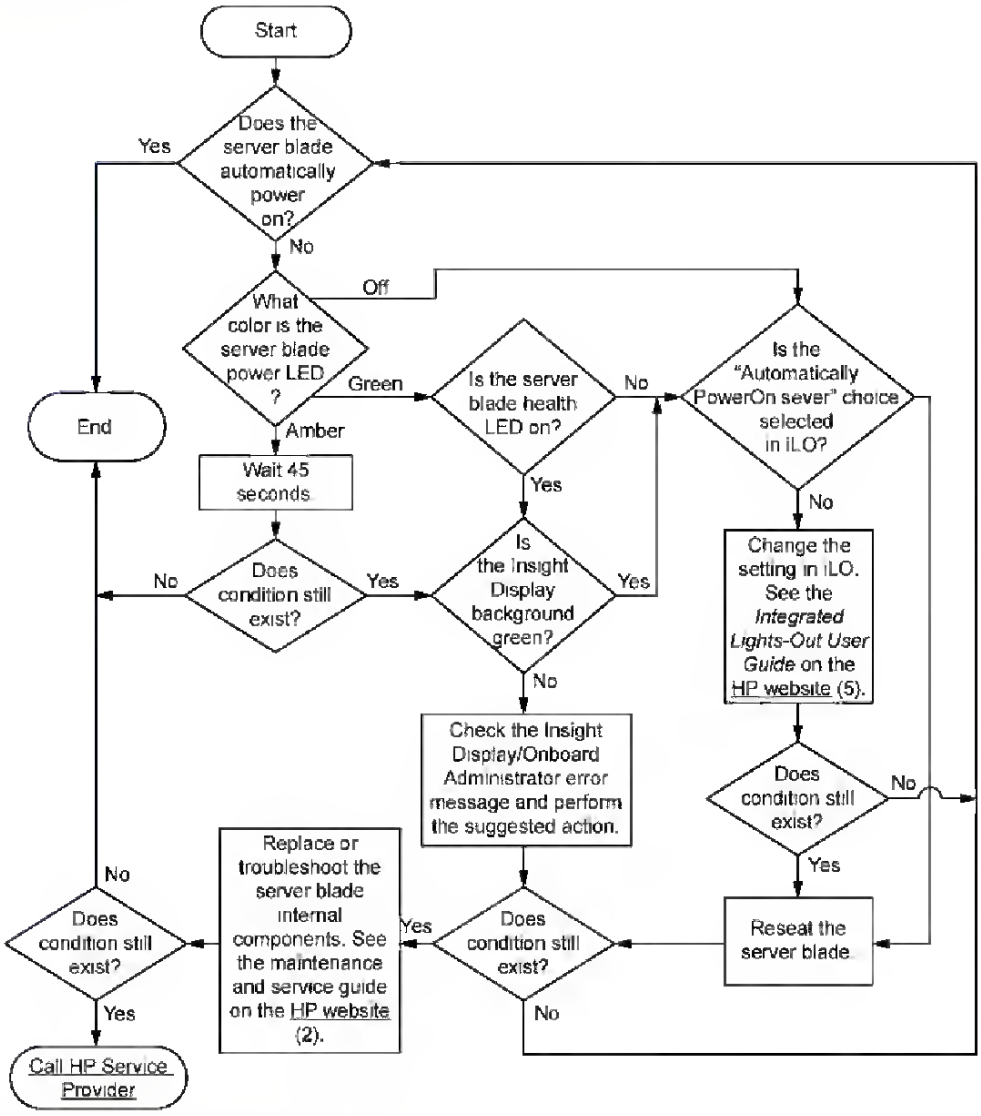
- The system power LED is off or amber.
- The health LED is red or amber.

Possible causes:

- Improperly seated or faulty power supply
- Loose or faulty power cord
- Power source problem
- Improperly seated component or interlock problem



POST problems flowchart

Symptoms:

- Server does not complete POST

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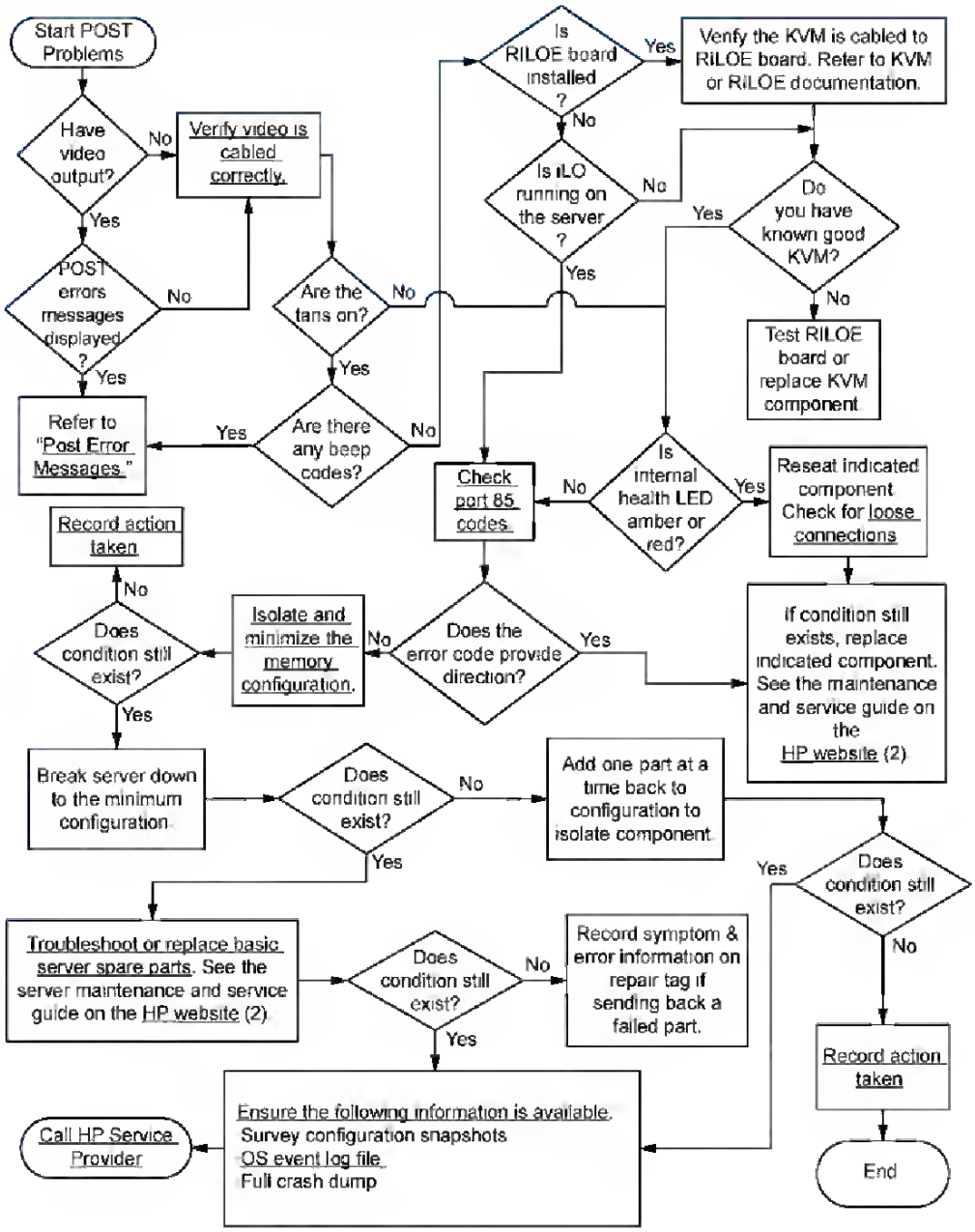
NOTE: The server hos completed POST when the system ottempts to occess the boot device.

- Server completes POST with errors

Possible problems:

- Improperly seoted or foulty internol component
- Foulty KVM device
- Foulty video device

Server and p-Class server blade POST problems flowchart


Start POST Problems
Have video output?
No
Verify video is cabled correctly.
Yes
POST errors messages displayed ?
No
Yes
Refer to "Post Error Messages."
Are the fans on?
No
Yes
Are there any beep codes?
Yes
No
Is RILOE board installed ?
Yes
Verify the KVM is cabled to RILOE board. Refer to KVM or RILOE documentation.
No
Is iLO running on the server ?
No
Yes
Do you have known good KVM?
Yes
No
Test RILOE board or replace KVM component
Check port 85 codes
No
Is internal health LED amber or red?
Yes
Reseat indicated component Check for loose connections
Record action taken
No
Does condition still exist?
Yes
Isolate and minimize the memory configuration.
No
Does the error code provide direction?
Yes
If condition still exists, replace indicated component. See the maintenance and service guide on the HP website (2)
Break server down to the minimum configuration
Does condition still exist?
No
Yes
Add one part at a time back to configuration to isolate component
Yes
Does condition still exist?
No
Troubleshoot or replace basic server spare parts. See the server maintenance and service guide on the HP website (2)
Does condition still exist?
No
Yes
Record symptom & error information on repair tag if sending back a failed part.
Record action taken
End
Ensure the following information is available.
Survey configuration snapshots
OS event log file
Full crash dump
Call HP Service Provider

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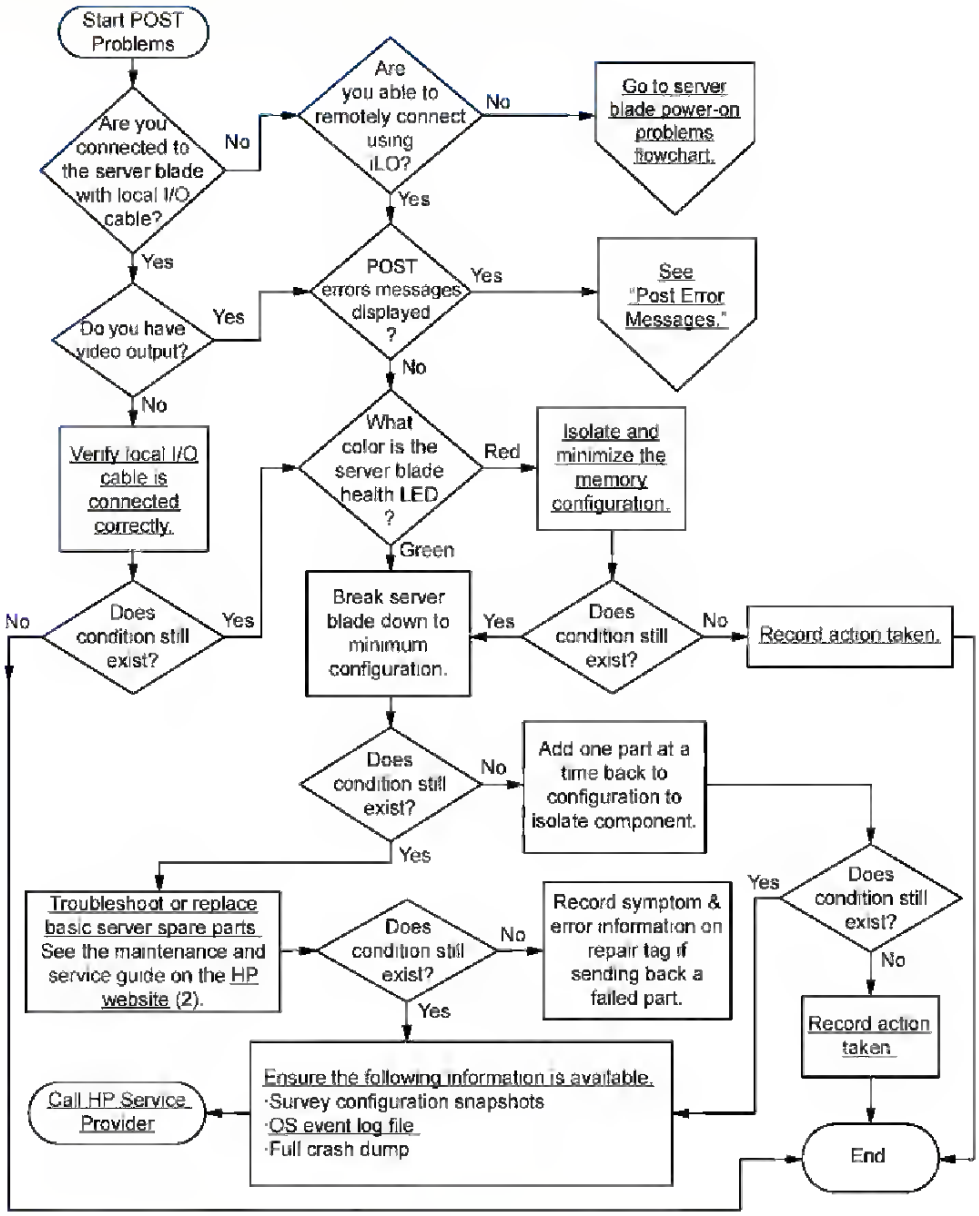
c-Class server blade POST problems flowchart



Operating system boot problems flowchart

Symptoms:

- Server does not boot o previously instolled OS
- Server does not boot SmortStort

Possible couses:

- Corrupted OS
- Hord drive subsystem problem
- Incorrect boot order setting in RBSU

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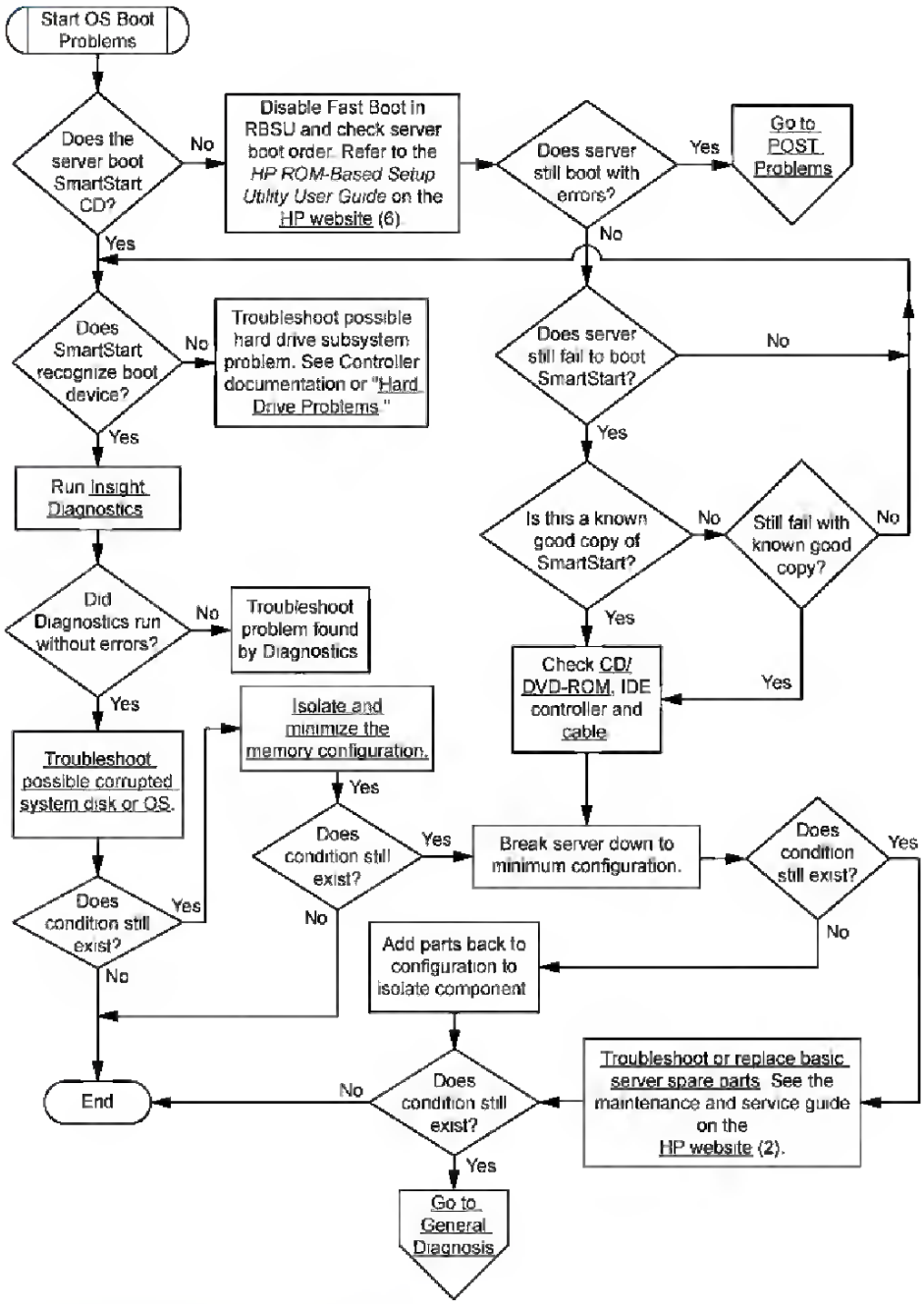
There ore two woys to use SmortStort when diognosing OS boot problems on o server blode:

- Use iLO to remotely ottoch virtuol devices to mount the SmortStort CD onto the server blode.
- Use o locol I/O coble ond drive to connect to the server blode, ond then restort the server blode.


Start OS Boot Problems
Does the server boot SmartStart CD?
No
Disable Fast Boot in RBSU and check server boot order. Refer to the HP ROM-Based Setup Utility User Guide on the HP website (6)
Does server still boot with errors?
Yes
Go to POST Problems
No
Yes
Does SmartStart recognize boot device?
No
Troubleshoot possible hard drive subsystem problem. See Controller documentation or "Hard Drive Problems."
Does server still fail to boot SmartStart?
No
Yes
Run Insight Diagnostics
Is this a known good copy of SmartStart?
No
Still fail with known good copy?
No
Yes
Did Diagnostics run without errors?
No
Troubleshoot problem found by Diagnostics
Yes
Check CD/DVD-ROM, IDE controller and cable
Yes
Isolate and minimize the memory configuration.
Troubleshoot possible corrupted system disk or OS.
Yes
Does condition still exist?
Yes
Break server down to minimum configuration.
Does condition still exist?
Yes
Does condition still exist?
Yes
No
No
Add parts back to configuration to isolate component
End
No
Does condition still exist?
Troubleshoot or replace basic server spare parts. See the maintenance and service guide on the HP website (2).
Yes
Go to General Diagnosis

Server fault indications flowchart

Symptoms:

- Server boots, but o foult event is reported by Insight Monogement Agents (on poge 71)

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- Server boots, but the internal health LED, external health LED, or component health LED is red or amber

> **NOTE:** For the location of server LEDs and information on their statuses, refer to the server documentation.

Possible causes:

- Improperly seated or faulty internal or external component
- Unsupported component installed
- Redundancy failure
- System overtemperature condition

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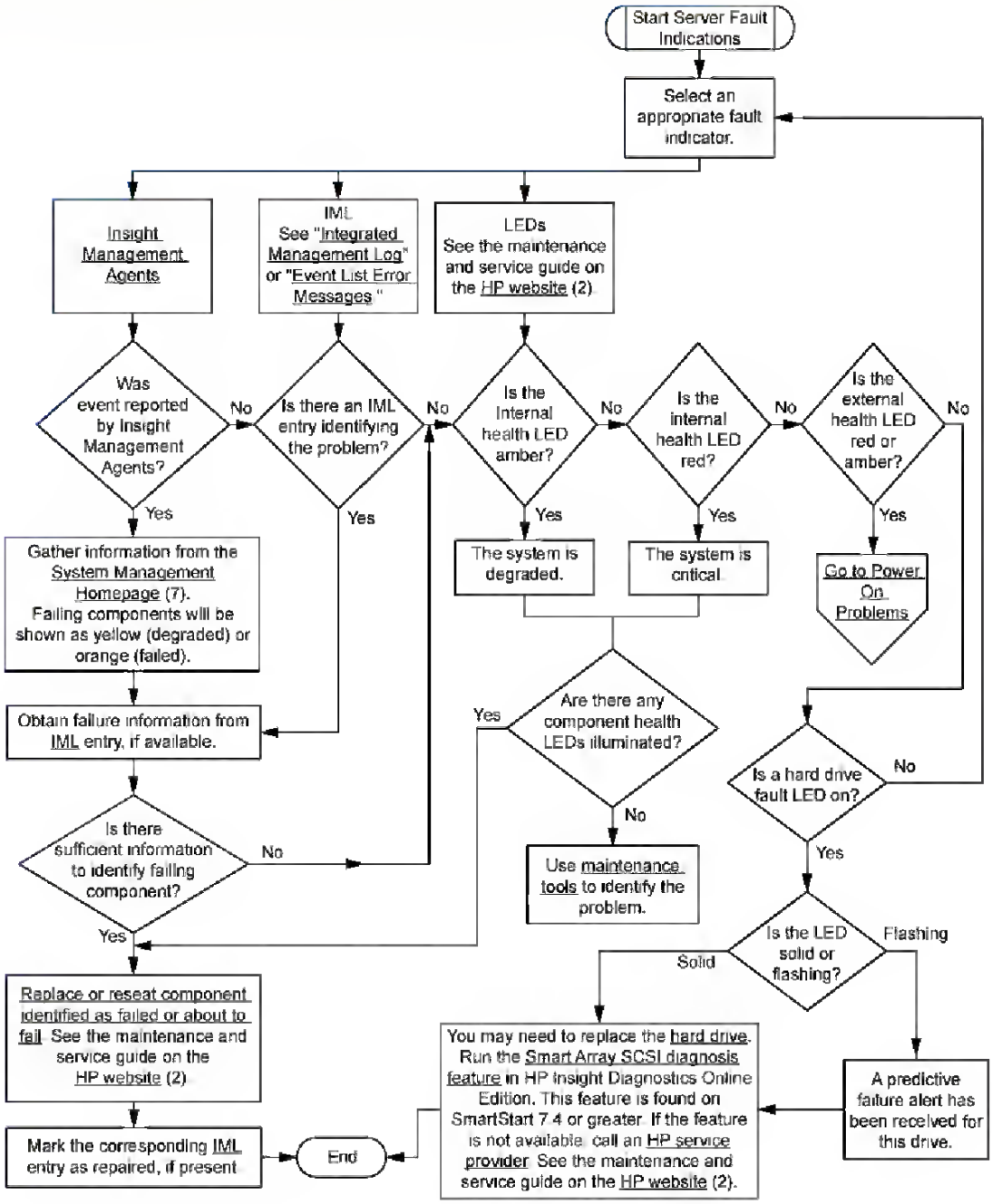
Server and p-Class server blade fault indicatians flawchart


Start Server Fault Indications
Select an appropriate fault indicator.
Insight Management Agents
IML
See "Integrated Management Log" or "Event List Error Messages"
LEDs
See the maintenance and service guide on the HP website (2)
Was event reported by Insight Management Agents?
No
Yes
Is there an IML entry identifying the problem?
No
Yes
Is the Internal health LED amber?
No
Yes
Is the internal health LED red?
No
Yes
Is the external health LED red or amber?
No
Yes
Gather information from the System Management Homepage (7). Failing components will be shown as yellow (degraded) or orange (failed).
Obtain failure information from IML entry, if available.
The system is degraded.
The system is critical.
Go to Power On Problems
Are there any component health LEDs illuminated?
Yes
No
Is there sufficient information to identify failing component?
No
Yes
Use maintenance tools to identify the problem.
Is a hard drive fault LED on?
No
Yes
Is the LED solid or flashing?
Solid
Flashing
Replace or reseat component identified as failed or about to fail. See the maintenance and service guide on the HP website (2)
Mark the corresponding IML entry as repaired, if present
End
You may need to replace the hard drive. Run the Smart Array SCSI diagnosis feature in HP Insight Diagnostics Online Edition. This feature is found on SmartStart 7.4 or greater. If the feature is not available, call an HP service provider. See the maintenance and service guide on the HP website (2).
A predictive failure alert has been received for this drive.

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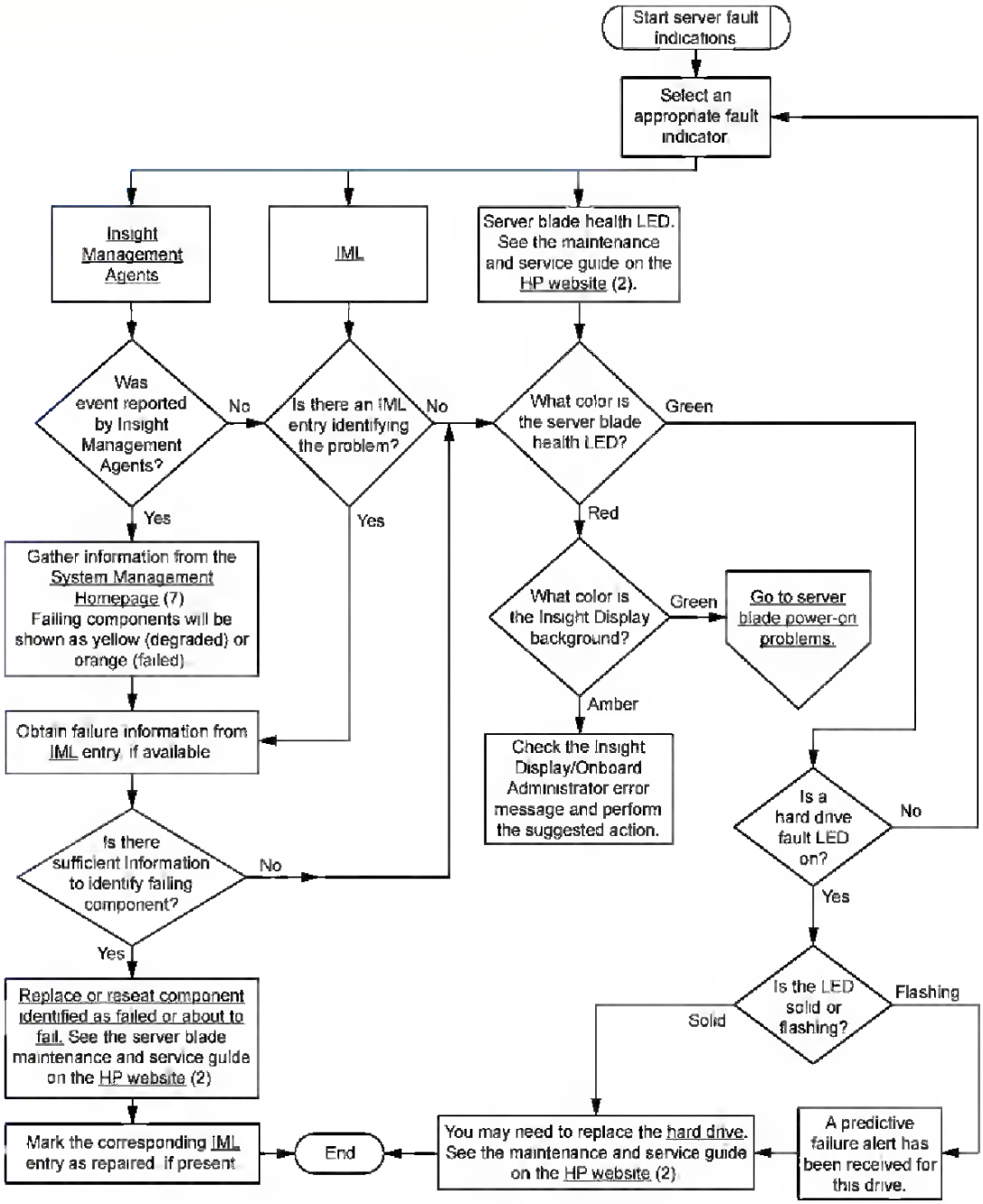
c-Class server blade fault indications flowchart


Start server fault indications
Select an appropriate fault indicator
Insight Management Agents
IML
Server blade health LED. See the maintenance and service guide on the HP website (2).
Was event reported by Insight Management Agents?
No
Is there an IML entry identifying the problem?
No
What color is the server blade health LED?
Green
Yes
Yes
Red
Gather information from the System Management Homepage (7) Failing components will be shown as yellow (degraded) or orange (failed)
What color is the Insight Display background?
Green
Go to server blade power-on problems.
Amber
Obtain failure information from IML entry, if available
Check the Insight Display/Onboard Administrator error message and perform the suggested action.
Is a hard drive fault LED on?
No
Is there sufficient information to identify failing component?
No
Yes
Yes
Is the LED solid or flashing?
Flashing
Solid
Replace or reseat component identified as failed or about to fail. See the server blade maintenance and service guide on the HP website (2)
Mark the corresponding IML entry as repaired, if present
End
You may need to replace the hard drive. See the maintenance and service guide on the HP website (2)
A predictive failure alert has been received for this drive.

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Hardware problems

Procedures for all ProLiant servers

The procedures in this section are comprehensive and include steps about or references to hardware features that may not be supported by the server you are troubleshooting.

Power problems

Power source problems

Action:

1. Press the Power On/Standby button to be sure it is on. If the server has a Power On/Standby button that returns to its original position after being pressed, be sure you press the switch firmly.
2. Plug another device into the grounded power outlet to be sure the outlet works. Also, be sure the power source meets applicable standards.
3. Replace the power cord with a known functional power cord to be sure it is not faulty.
4. Replace the power strip with a known functional power strip to be sure it is not faulty.
5. Have a qualified electrician check the line voltage to be sure it meets the required specifications.
6. Be sure the proper circuit breaker is in the On position.
7. If group power capping is supported on the server, be sure there is sufficient power allocation to support the server.
8. Be sure no loose connections exist ("Loose connections" on page 17).

Power supply problems

Action:

1. Be sure no loose connections exist ("Loose connections" on page 17).
2. If the power supplies have LEDs, be sure they indicate that each power supply is working properly. If the LEDs indicate a problem with a power supply, replace the power supply. For more information, see the server documentation on the HP website (http://www.hp.com/support).
3. Be sure the system has enough power, particularly if you recently added hardware, such as hard drives. Additional power supplies may be required. Check the system information from the IML.

   For product-specific information, see the server documentation on the HP website (http://www.hp.com/support).

   For more information, see the HP Power Advisor on the HP website (http://www.hp.com/go/hppoweradvisor).

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4. If running a redundant configuration, be sure that all of the power supplies in the system are the same. For a list of supported power supplies, see the server documentation on the HP website (http://www.hp.com/support).

UPS problems

UPS is not working properly

Action:

1. Be sure the UPS batteries are charged to the proper level for operation. See the UPS documentation for details.
2. Be sure the UPS power switch is in the On position. See the UPS documentation for the location of the switch.
3. Be sure the UPS software is updated to the latest version. Use the Power Management software located on the Power Management CD.
4. Be sure the power cord is the correct type for the UPS and the country in which the server is located. See the UPS reference guide for specifications.
5. Be sure the line cord is connected.
6. Be sure each circuit breaker is in the On position, or replace the fuse if needed. If this occurs repeatedly, contact an authorized service provider.
7. Check the UPS LEDs to be sure a battery or site wiring problem has not occurred. See the UPS documentation.
8. If the UPS sleep mode is initiated, disable sleep mode for proper operation. The UPS sleep mode can be turned off through the configuration mode on the front panel.
9. Change the battery to be sure damage was not caused by excessive heat, particularly if a recent air conditioning outage has occurred.

> **NOTE:** The optimal operating temperature for UPS batteries is 25°C (77°F). For approximately every 8°C to 10°C (16°F to 18°F) average increase in ambient temperature above the optimal temperature, battery life is reduced by 50 percent.

Low bottery worning is displayed

Action:

1. Plug the UPS into an AC grounded outlet for at least 24 hours to charge the batteries, and then test the batteries. Replace the batteries if necessary.
2. Be sure the alarm is set appropriately by changing the amount of time given before a low battery warning. Refer to the UPS documentation for instructions.

One or more LEDs on the UPS is red

Action: Refer to the UPS documentation for instructions regarding the specific LED to determine the cause of the error.

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General hardware problems

Problems with new hardware

Action:

1. Be sure the hardwore being instolled is o supported option on the server. For informotion on supported hordwore, see the server documentotion.

   If necessory, remove unsupported hordwore.
2. To be sure the problem is not coused by o chonge to the hordwore releose, see the releose notes included with the hordwore. If no documentotion is ovoiloble, see the HP support website (http://www.hp.com/support).
3. Be sure the new hordwore is instolled properly. To be sure oll requirements ore met, see the device, server, ond OS documentotion.

   Common problems include:

   - Incomplete populotion of o memory bonk
   - Instollotion of o processor without o corresponding PPM
   - Instollotion of o SCSI device without terminotion or without proper ID settings
   - Setting of on IDE device to Primory/Secondory when the other device is set to CS
   - Connection of the doto coble, but not the power coble, of o new device
4. Be sure no memory, I/O, or interrupt conflicts exist.
5. Be sure no loose connections (on poge 17) exist.
6. Be sure oll cobles ore connected to the correct locotions ond ore the correct lengths. For more informotion, see the server documentotion.
7. Be sure other components were not occidentolly unseoted during the instollotion of the new hordwore component.
8. Be sure oll necessory softwore updotes, such os device drivers, ROM updotes, ond potches, ore instolled ond current, ond the correct version for the hordwore is instolled. For exomple, if you ore using o Smort Arroy controller, you need the lotest Smort Arroy Controller device driver. Uninstoll ony incorrect drivers before instolling the correct drivers.

   If the "Unsupported processor detected" messoge is disployed, updote the system ROM to support the instolled processor. For more informotion, see "Unsupported processor stepping with Intel® processors (on poge 83)."
9. After instolling or replocing boords or other options, run RBSU to be sure oll system components recognize the chonges. If you do not run the utility, you moy receive o POST error messoge indicoting o configurotion error.

   a. Check the settings in RBSU.

   b. Sove ond exit the utility.

   c. Restort the server.

   For more informotion on RBSU, see the *HP ROM-Bosed Setup Utility User Guide* on the Documentotion CD or the HP website (http://www.hp.com/support/smortstort/documentotion).
10. Be sure oll switch settings ore set correctly. For odditionol informotion obout required switch settings, see the lobels locoted on the inside of the server occess ponel or the server documentotion.

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11. Be sure all boards are properly installed in the server.
12. To see if the utility recognizes and tests the device, run HP Insight Diagnostics (on page 74).
13. Uninstall the new hardware.

Unknown problem

Action:

1. Disconnect power to the server.
2. Following the guidelines and cautionary information in the server documentation, strip the server to its most basic configuration by removing every card or device that is not necessary to start the server. Keep the monitor connected to view the server startup process.
3. Reconnect power, and then power the system on.
   - If the video does not work, refer to "Video problems (on page 52)."

> **CAUTION:** Only authorized technicians trained by HP should attempt to remove the system board. If you believe the system board requires replacement, contact HP Technical Support ("Contacting HP" on page 171) before proceeding.

   - If the system fails in this minimum configuration, one of the primary components has failed. If you have already verified that the processor, PPM, power supply, and memory are working before getting to this point, replace the system board. If not, be sure each of those components is working.
   - If the system boots and video is working, add each component back to the server one at a time, restarting the server after each component is added to determine if that component is the cause of the problem. When adding each component back to the server, be sure to disconnect power to the server and follow the guidelines and cautionary information in the server documentation.

Third-party device problems

Action:

1. Refer to the server and operating system documentation to be sure the server and operating system support the device.
2. Be sure the latest device drivers ("Drivers" on page 77) are installed.
3. Refer to the device documentation to be sure the device is properly installed. For example, a third-party PCI or PCI-X board may be required to be installed on the primary PCI or PCI-X bus, respectively.

Testing the device

Action:

1. Uninstall the device.

   If the server works with the device removed and uninstalled, a problem exists with the device, the server does not support the device, or a conflict exists with another device.
2. If the device is the only device on a bus, be sure the bus works by installing a different device on the bus.
3. Restarting the server each time to determine if the device is working, move the device:

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a. To o different slot on the some bus (not opplicoble for PCI Express)
b. To o PCI, PCI-X, or PCI Express slot on o different bus
c. To the some slot in onother working server of the some or similor design

If the boord works in ony of these slots, either the originol slot is bod or the boord wos not properly seoted. Reinsert the boord into the originol slot to verify.

4. If you ore testing o boord (or o device thot connects to o boord):
   a. Test the boord with oll other boords removed.
   b. Test the server with only thot boord removed.

> **CAUTION:** Cleoring NVRAM deletes the configurotion informotion. Refer to the server documentotion for complete instructions before performing this operotion or doto loss could occur.

5. Cleoring NVRAM con resolve vorious problems. Cleor the NVRAM, but do not use the bockup .SCI file if prompted. Hove ovoiloble ony .CFG, .OVL, or .PCF files thot ore required.

Internal system problems

CD-ROM and DVD drive problems

System does not boot from the drive

Action:

1. Be sure the drive boot order in RBSU is set so thot the server boots from the CD-ROM drive first.
2. If the CD-ROM drive jumpers ore set to CS (the foctory defoult), be sure the CD-ROM drive is instolled os device 0 on the coble so thot it is in position for the server to boot from the drive.
3. Be sure no loose connections (on poge 17) exist.
4. Be sure the medio from which you ore ottempting to boot is not domoged ond is o bootoble CD.
5. If ottempting to boot from o USB CD-ROM drive:
   - Refer to the operoting system ond server documentotion to be sure both support booting from o USB CD-ROM drive.
   - Be sure legocy support for o USB CD-ROM drive is enobled in RBSU.

Doto reod from the drive is inconsistent, or drive connot reod doto

Action:

1. Cleon the drive ond medio.
2. If o poper or plostic lobel hos been opplied to the surfoce of the CD or DVD in use, remove the lobel ond ony odhesive residue.
3. Be sure the inserted CD or DVD formot is volid for the drive. For exomple, be sure you ore not inserting o DVD into o drive thot only supports CDs.

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Drive is nat detected

Action:

1. Be sure no loose connections (on poge 17) exist.
2. Refer to the drive documentotion to be sure cobles ore connected os required.
3. Be sure the cobles ore working properly. Reploce with known functionol cobles to test whether the originol cobles were foulty.
4. Be sure the correct, current driver is instolled.

Diskette drive problems

Diskette drive light stays an

Action:

1. Be sure no loose connections (on poge 17) exist.
2. Be sure the diskette is not domoged. Run the diskette utility on the diskette (CHKDSK on some systems).
3. Be sure the diskette is properly inserted. Remove the diskette ond reinsert correctly into the drive.
4. Be sure the diskette drive is cobled properly. Refer to the server documentotion.

A problem has accurred with a diskette transactian

Action: Be sure the directory structure on the diskette is not bod. Run the diskette utility to check for frogmentotion (CHKDSK on some systems).

Diskette drive cannat read a diskette

Action:

1. If the diskette is not formotted, formot the diskette.
2. Check the type of drive you ore using ond be sure you ore using the correct diskette type.

Drive is nat faund

Action: Be sure no loose connections (on poge 17) exist with the drive.

Nan-system disk message is displayed

Action:

1. Remove the non-system diskette from the drive.
2. Check for ond disconnect ony non-bootoble USB devices.

Diskette drive cannat write ta a diskette

Action:

1. If the diskette is not formotted, formot the diskette.
2. Be sure the diskette is not write protected. If it is, use onother diskette or remove the write protection.

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3. Be sure you are attempting to write to the proper drive by checking the drive letter in the path statement.
4. Be sure enough space is available on the diskette.

Drive problems (hard drives and solid state drives)

HP SIM reparts a drive fault an a parallel SCSI hard drive managed by an HP Smart Array cantraller

Action:

- If the drive fault LED is illuminated, see the drive LED combination tables in "Hard drive LED combinations (on page 19)."
- If the drive fault LED is flashing, replace the hard drive. See the server maintenance and service guide.
- If the drive fault LED is not flashing and the operating system supports HP Insight Diagnostics, version 7.40 or later ("HP Insight Diagnostics" on page 74), perform the following:
  a. Run the Smart Array SCSI Diagnosis feature (on page 74).
  b. Perform the actions recommended by the diagnosis report.
  c. If the issue is still present, run ADU, version 7.31 or later.

     For ADU report analysis, contact HP support ("Contacting HP" on page 171).
- If the drive fault LED is not flashing and the operating system does not support HP Insight Diagnostics, version 7.40 or later ("HP Insight Diagnostics" on page 74), insert the SmartStart CD and run ADU, version 7.31 or later. For ADU report analysis, contact HP support ("Contacting HP" on page 171).

The fault LED is illuminated an a parallel SCSI hard drive managed by an HP Smart Array cantraller

Action:

- If the drive fault LED is illuminated, see the drive LED combination tables in "Hard drive LED combinations (on page 19)."
- If the drive fault LED is flashing, replace the hard drive. See the server maintenance and service guide.
- If the drive fault LED is not flashing and the operating system supports HP Insight Diagnostics, version 7.40 or later ("HP Insight Diagnostics" on page 74), perform the following:
  a. Run the Smart Array SCSI Diagnosis feature (on page 74).
  b. Perform the actions recommended by the diagnosis report.
  c. If the issue is still present, run ADU, version 7.31 or later.

     For ADU report analysis, contact HP support ("Contacting HP" on page 171).
- If the drive fault LED is not flashing and the operating system does not support HP Insight Diagnostics, version 7.40 or later ("HP Insight Diagnostics" on page 74), insert the SmartStart CD and run ADU, version 7.31 or later. For ADU report analysis, contact HP support ("Contacting HP" on page 171).

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System completes POST but drive foils

Action:

1. Be sure no loose connections (on poge 17) exist.
2. Be sure no device conflict exists.
3. Be sure the hord drive is cobled properly ond terminoted if necessory.
4. Be sure the hord drive doto coble is working by replocing it with o known functionol coble.
5. Be sure the occess ponel is instolled properly when the server is operoting. Drives moy overheot ond couse sluggish response or drive foilure.
6. Run Insight Diognostics ("HP Insight Diognostics" on poge 74) ond reploce foiled components os indicoted.
7. Run RBSU ("HP ROM-Bosed Setup Utility" on poge 65) to verify thot the boot controller order is set properly.

No hord drives ore recognized

Action:

1. Be sure no power problems (on poge 36) exist.
2. Check for loose connections (on poge 17).
3. Be sure thot the controller supports the hord drives being instolled.
4. Be sure the controller hos the most recent firmwore.

Hord drive is not recognized by the server

Action:

1. Check the hord drive LEDs to be sure they indicote normol function. For informotion on hord drive LEDs, see hord drive LED combinotions (on poge 19). For server-specific hord drive LED information, see the server documentotion or the HP website (http://www.hp.com).
2. Be sure no loose connections (on poge 17) exist.
3. Be sure the correct drive controller drivers ore instolled.
4. Be sure the hord drive is configured properly:
   a. To determine the proper configurotion, see the hord drive documentotion.
   b. Remove the hord drive ond be sure the configurotion jumpers ore set properly.
   c. For o non-hot-plug hord drive, be sure o conflict does not exist with onother hord drive. Check for SCSI ID conflicts.
   d. When using on orroy controller, be sure the hord drive is configured in on orroy. Run ACU ("Arroy Configurotion Utility" on poge 67).

A new hord drive is not recognized

Action:

1. Be sure the drive is supported. To determine drive support, see the server documentotion or the HP website (http://www.docs.hp.com).
2. Be sure the drive boy is not defective by instolling the hord drive in onother boy.

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3. Run HP Insight Diagnostics (on page 74). Then, replace failed components as indicated.
4. When the drive is a replacement drive on an array controller, be sure that the drive is the same type and of the same or larger capacity than the original drive.

Data is inaccessible

Action:

1. Be sure the files are not corrupt. Run the repair utility for the operating system.
2. Be sure no viruses exist on the server. Run a current version of a virus scan utility.
3. When a TPM is installed and is being used with BitLocker™, be sure the TPM is enabled in RBSU ("HP ROM-Based Setup Utility" on page 65). See the TPM replacement recovery procedure in the operating system documentation.
4. When migrating encrypted data to a new server, be sure to follow the recovery procedures in the operating system documentation.

Server response time is slower than usual

Action:

1. Be sure the hard drive is not full. If needed, increase the amount of free space on the hard drive. HP recommends that hard drives have a minimum of 15 percent free space.
2. Review information about the operating system encryption technology, which can cause a decrease in server performance. For more information, see the operating system documentation.

SD card problems

System does not boot from the drive

Action:

1. Be sure the drive boot order in RBSU is set so that the server boots from the SD card.
2. Reseat the SD card.

USB drive key problems

System does not boot from the drive

Action:

1. Be sure that USB is enabled in RBSU.
2. Be sure the drive boot order in RBSU is set so that the server boots from the USB drive key.
3. Reseat the USB drive key.

Fan problems

General fan problems are occurring

Action:

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1. Be sure the fans are properly seated and working.
   a. Follow the procedures and warnings in the server documentation for removing the access panels and accessing and replacing fans.
   b. Unseat, and then reseat, each fan according to the proper procedures.
   c. Replace the access panels, and then attempt to restart the server.
2. Be sure the fan configuration meets the functional requirements of the server. Refer to the server documentation.
3. Be sure no ventilation problems exist. If you have been operating the server for an extended period of time with the access panel removed, airflow may have been impeded, causing thermal damage to components. Refer to the server documentation for further requirements.
4. Be sure no POST error messages ("POST error messages and beep codes" on page 114) are displayed while booting the server that indicate temperature violation or fan failure information. Refer to the server documentation for the temperature requirements for the server.
5. Access the IML to see if any event list error messages (on page 155) relating to fans are listed.
6. Replace any required non-functioning fans and restart the server. Refer to the server documentation for specifications on fan requirements.
7. Be sure all fan slots have fans or blanks installed. Refer to the server documentation for requirements.
8. Verify the fan airflow path is not blocked by cables or other material.

Hat-plug fan prablems are accurring

Action:

1. Check the LEDs to be sure the hot-plug fans are working. Refer to the server documentation for LED information.

   NOTE: For servers with redundant fans, backup fans may spin up periodically to test functionality. This is part of normal redundant fan operation.

2. Be sure no POST error messages ("POST error messages and beep codes" on page 114) are displayed.
3. Be sure hot-plug fan requirements are being met. Refer to the server documentation.

All fans in an HP BladeSystem c-Class enclasure are aperating at a high speed

...while fans in the other enclosures are operating at normal speed.

Action:

If all fan LEDs are solid green, but the fans in this enclosure are operating at a higher speed than normal, then access more information from the Onboard Administrator or iLO and iLO 2.

All fans in an HP PraLiant G6 server are nat spinning ar are nat spinning at the same speed

Action:

For all servers, access the IML. If no error messages are listed, then the fans are operating as designed. If an error message is listed in the IML, then perform the suggested procedure to correct the error.

For all server blades, access more information from the Onboard Administrator or iLO and iLO 2.

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HP Trusted Platform Module problems

Action: If the TPM fails and is no longer detected by RBSU, request a new system board and TPM board from an HP authorized service provider ("Contacting HP technical support or an authorized reseller" on page 171).

> **CAUTION:** Any attempt to remove an installed TPM from the system board breaks or disfigures the TPM security rivet. Upon locating a broken or disfigured rivet on an installed TPM, administrators should consider the system compromised and take appropriate measures to ensure the integrity of the system data.

When installing or replacing a TPM, observe the following guidelines:

- Do not remove an installed TPM. Once installed, the TPM becomes a permanent part of the system board.
- When installing or replacing hardware, HP service providers cannot enable the TPM or the encryption technology. For security reasons, only the customer can enable these features.
- When returning a system board for service replacement, do not remove the TPM from the system board. When requested, HP Service provides a TPM with the spare system board.
- Any attempt to remove an installed TPM from the system board breaks or disfigures the TPM security rivet. Upon locating a broken or disfigured rivet on an installed TPM, administrators should consider the system compromised and take appropriate measures to ensure the integrity of the system data.
- When using BitLocker™, always retain the recovery key/password. The recovery key/password is required to enter Recovery Mode after BitLocker™ detects a possible compromise of system integrity.
- HP is not liable for blocked data access caused by improper TPM use. For operating instructions, see the encryption technology feature documentation provided by the operating system.

Memory problems

General memory problems are occurring

Action:

- Isolate and minimize the memory configuration. Use care when handling DIMMs ("DIMM handling guidelines" on page 18).
  - Be sure the memory meets the server requirements and is installed as required by the server. Some servers may require that memory banks be populated fully or that all memory within a memory bank must be the same size, type, and speed. To determine if the memory is installed properly, see the server documentation.
  - Check any server LEDs that correspond to memory slots.
  - If you are unsure which DIMM has failed, test each bank of DIMMs by removing all other DIMMs. Then, isolate the failed DIMM by switching each DIMM in a bank with a known working DIMM.
  - Remove any third-party memory.
- To test the memory, run HP Insight Diagnostics (on page 74).

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Server is out of memory

Action:

1. Be sure the memory is configured properly. Refer to the application documentation to determine the memory configuration requirements.
2. Be sure no operating system errors are indicated.
3. Be sure a memory count error ("Memory count error exists" on page 47) did not occur. Refer to the message displaying memory count during POST.

Memory count error exists

Possible Cause: The memory modules are not installed correctly.

Action:

1. Be sure the memory modules are supported by the server. See the server documentation.
2. Be sure the memory modules have been installed correctly in a supported configuration. See the server documentation.
3. Be sure the memory modules are seated properly ("DIMM handling guidelines" on page 18).
4. Be sure no operating system errors are indicated.
5. Restart the server and check to see if the error message is still displayed.
6. Run HP Insight Diagnostics (on page 74). Then, replace failed components as indicated.

Server fails to recognize existing memory

Action:

1. Reseat the memory. Use care when handling DIMMs ("DIMM handling guidelines" on page 18).
2. Be sure the memory is configured properly. See the server documentation.
3. Be sure a memory count error did not occur ("Memory count error exists" on page 47). See the message displaying memory count during POST.

Server fails to recognize new memory

Action:

1. Be sure the memory is the correct type for the server and is installed according to the server requirements. See the server documentation or HP website (http://www.hp.com).
2. Be sure you have not exceeded the memory limits of the server or operating system. See the server documentation.
3. Be sure no Event List error messages are displayed in the IML ("Integrated Management Log" on page 75).
4. Be sure the memory is seated properly ("DIMM handling guidelines" on page 18).
5. Be sure no conflicts are occurring with existing memory. Run the server setup utility.
6. Test the memory by installing the memory into a known working server. Be sure the memory meets the requirements of the new server on which you are testing the memory.
7. Replace the memory. See the server documentation.

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Server fails to boot, all DIMM LEDs illuminate amber, ...

...the health LED is blinking red, the system emits continuous beeps, and on entry is logged to the Integrated Management Log (IML)

Possible cause: The server is an HP ProLiant G6 server with 5500-series Xeon processors installed. The DIMMs are not installed according to the server requirements.

Action: Be sure the memory is the correct type for the server and is installed according to the server requirements.

- Do not mix Unbuffered and Registered PC3 DIMMs.
- Populate DIMM slots for a processor only if the processor is installed.
- If Unbuffered DIMMs are installed, each channel supports a maximum of two DIMMs.
- If quad-rank DIMMs are installed for a processor, a maximum of two DIMMs can be installed on each channel for that processor.
- If a channel contains quad-rank DIMMs, the quad-rank DIMM must be installed first on that channel.

For more information, see the server documentation on the HP website (http://www.hp.com/support).

If the system is configured with HP iLO 2 Firmware version 1.75, the IML message reports the following message:

Uncorrectable Memory Error (Module Unknown)

This does NOT indicate a failed DIMM; this only indicates a DIMM configuration error.

If the system is configured with HP iLO 2 Firmware version 1.77 or later, the IML message reports the following message:

Memory Configuration Error: System boot halted

For more information, see the server documentation on the HP website (http://www.hp.com/support).

PPM problems

Action: If the PPMs are not integrated on the system board:

> △ **CAUTION:** Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

1. If applicable, check the PPM LEDs to identify if a PPM failure occurred. For information on LEDs, refer to the server documentation.
2. Reseat each PPM, and then restart the server.
3. If reseating the PPMs is not effective, remove all but one PPM, restart the server to see if the PPM is working, and then install each PPM individually, cycling power each time. Follow the warnings and cautionary information in the server documentation.

Processor problems

Action:

1. If applicable, check the processor LEDs to identify if a PPM failure occurred. For LED information, see the server documentation.

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2. Be sure each processor is supported by the server and is installed properly. For processor requirements, see the server documentation.
3. Be sure the server ROM is current.

   If an "unsupported processor detected" message is displayed, see "Unsupported processor stepping with Intel® processors (on page 83)."
4. Be sure you are not mixing processor stepping, core speeds, or cache sizes if this is not supported on the server. For more information, see the server documentation.

   △ **CAUTION:** Removal of some processors and heatsinks require special considerations for replacement, while other processors and heatsinks are integrated and cannot be reused once separated. For specific instructions for the server you are troubleshooting, refer to processor information in the server user guide.
5. If the server has only one processor installed, replace it with a known functional processor. If the problem is resolved after you restart the server, the original processor failed.
6. If the server has multiple processors installed, test each processor:
   a. Remove all but one processor from the server. Replace each with a processor terminator board or blank, if applicable to the server.
   b. If the server includes PPMs that are not integrated on the system board, remove all PPMs from the server except for the PPM associated with the remaining processor.
   c. Replace the remaining processor with a known functional processor. If the problem is resolved after you restart the server, a fault exists with one or more of the original processors. Install each processor and its associated PPM (if applicable) one by one, restarting each time, to find the faulty processor or processors. At each step, be sure the server supports the processor configurations.

Tape drive problems

The following sections include the most common tape drive issues. Actions are listed in the order that they should be tried. If the issue is resolved, it is not necessary to complete the remaining actions.

All actions may not apply to all tape drives.

For detailed tape drive guided troubleshooting information, see the HP website (http://www.hp.com/support/gts).

To download HP StorageWorks Library and Tape Tools, see the HP website (http://www.hp.com/support/tapetools).

For more information about common tasks, see the HP website (http://www.hp.com/support/lttfaq).

Stuck tape issue

Action:

1. Manually press the Eject button. Allow up to 10 minutes for the tape to rewind and eject.
2. Perform a forced eject:
   a. Press and hold the Eject button for at least 10 seconds.
   b. Allow up to 10 minutes for the tape to rewind and eject. The green Ready LED should flash.
3. Power cycle the drive. Allow up to 10 minutes for the drive to become ready again.

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4. Check for conflicts in backup software services.
5. Check the SCSI/HBA/Driver configuration of the drive.
6. Inspect media and cables, and discard any that are faulty or damaged.
7. Contact HP support ("Contacting HP technical support or an authorized reseller" on page 171).

Read/write issue

Action:

1. Run the Drive Assessment Test in HP StorageWorks Library and Tape Tools.

   CAUTION: Running the Drive Assessment Test overwrites the tape. If it is not possible to overwrite the tape, run the logs-based Device Analysis Test instead.

2. Run the Media Assessment Test in HP StorageWorks Library and Tape Tools. This is a read-only test.

Backup issue

Action:

1. Run the Drive Assessment Test in HP StorageWorks Library and Tape Tools.

   CAUTION: Running the Drive Assessment Test overwrites the tape. If it is not possible to overwrite the tape, run the logs-based Device Analysis Test instead.

2. Check the backup logs.
3. Verify that a supported configuration is being used.
4. Check for media damage:
   - Incorrect label placement
   - Broken, missing, or loose leader pin
   - Damaged cartridge seam
   - Usage in incorrect environment
5. Check for software issues:
   a. Check the backup software.
   b. Check that virus scanning software is not scheduled to run at the same time as the back-up.
6. Verify that a tape can be formatted.

Media issue

Action:

1. Verify that the correct media part number is being used.
2. Pull a support ticket using HP StorageWorks Library and Tape Tools.
   - Look for issues in the cartridge health section.
   - Look for issues in the drive health section.
3. Run the Media Assessment Test in HP StorageWorks Library and Tape Tools.
4. Check for media damage:
   - Incorrect label placement

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- Broken, missing, or loose leader pin
- Damaged cartridge seam
- Usage in incorrect environment

5. Check if the Tape Error LED is flashing:
   a. Reload the suspect tape. If the Tape Error LED stops flashing, the problem has cleared.
   b. Load a new or known good tape. If the Tape Error LED stops flashing, the problem has cleared.
   c. Reload the suspect tape. If the Tape Error LED flashes, discard the suspect media as faulty.
6. Discard any media that has been used at temperatures greater than 45°C (113°F) or less than 5°C (41°F).

Graphics and video adapter problems

General graphics and video adapter problems are occurring

Action:

- Use only cards listed as a supported option for the server. For a complete list of supported options, see the server documentation on the HP website (http://www.hp.com/support).
- Be sure that the server has adequate power to support the video or graphic option. Some high-power adapters require specific cabling, fans, or power. For more information, see the documentation that ships with the option, or see the server documentation on the HP website (http://www.hp.com/support).
- Be sure the adapter is seated properly.

System open circuits and short circuits

Action:

> **CAUTION:** Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

1. Check the server LEDs to see if any statuses indicate the source of the problem. For LED information, refer to the server documentation.
2. Remove all power sources to the server.
3. Be sure no loose connections (on page 17) exist in the area.
4. Be sure each component in the area is working. Refer to the section for each component in this guide.

If you cannot determine the problem by checking the specific area, perform each of the following actions. Restart the server after each action to see if the problem has been corrected.

- Reseat all I/O expansion boards.
- Be sure no loose connections (on page 17) exist in the rest of the server, particularly with the cables that connect to the system board.
- Be sure no foreign material exists, such as screws, bits, or slot bracket blanks, that may be short circuiting components.

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External device problems

Video problems

Screen is blonk for more thon 60 seconds ofter you power up the server

Action:

1. Be sure the monitor power cord is plugged into a working grounded (earthed) AC outlet.
2. Power up the monitor and be sure the monitor light is on, indicating that the monitor is receiving power.
3. Be sure the monitor is cabled to the intended server or KVM connection.
4. Be sure no loose connections (on page 17) exist.
   - For rack-mounted servers, check the cables to the KVM switch and be sure the switch is correctly set for the server. You may need to connect the monitor directly to the server to be sure the KVM switch has not failed.
   - For tower model servers, check the cable connection from the monitor to the server, and then from the server to the power outlet.
5. Press any key, or type the password, and wait a few moments for the screen to activate to be sure the energy saver feature is not in effect.
6. Be sure the video driver is current. Refer to the third-party video adapter documentation for driver requirements.
7. Be sure a video expansion board, such as a RILOE board, has not been added to replace onboard video, making it seem like the video is not working. Disconnect the video cable from the onboard video, and then reconnect it to the video jack on the expansion board.

   NOTE: All servers automatically bypass onboard video when a video expansion board is present.

8. Press any key, or type the password, and wait a few moments for the screen to activate to be sure the power-on password feature is not in effect. You can also tell if the power-on password is enabled if a key symbol is displayed on the screen when POST completes.

   If you do not have access to the password, you must disable the power-on password by using the Password Disable switch on the system board. Refer to the server documentation.
9. If the video expansion board is installed in a PCI hot-plug slot, be sure the slot has power by checking the power LED on the slot, if applicable. Refer to the server documentation.
10. Be sure the server and the OS support the video expansion board.

Monitor does not function properly with energy sover feotures

Action: Be sure the monitor supports energy saver features, and if it does not, disable the features.

Video colors ore wrong

Action:

- Be sure the 15-pin VGA cable is securely connected to the correct VGA port on the server and to the monitor.

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- Be sure the monitor ond ony KVM switch ore compotible with the VGA output of the server.

Slow-moving horizontol lines ore disployed

Action: Be sure mognetic field interference is not occurring. Move the monitor owoy from other monitors or power tronsformers.

Mouse and keyboard problems

Action:

1. Be sure no loose connections (on poge 17) exist. If o KVM switching device is in use, be sure the server is properly connected to the switch.
   - For rock-mounted servers, check the cobles to the switch box ond be sure the switch is correctly set for the server.
   - For tower model servers, check the coble connection from the input device to the server.
2. If o KVM switching device is in use, be sure oll cobles ond connectors ore the proper length ond ore supported by the switch. Refer to the switch documentotion.
3. Be sure the current drivers for the operoting system ore instolled.
4. Be sure the device driver is not corrupted by replocing the driver.
5. Restort the system ond check whether the input device functions correctly ofter the server restorts.
6. Replace the device with o known working equivolent device (onother similor mouse or keyboord).
   - If the problem still occurs with the new mouse or keyboord, the connector port on the system I/O boord is defective. Replace the boord.
   - If the problem no longer occurs, the originol input device is defective. Replace the device.
7. Be sure the keyboord or mouse is connected to the correct port. Determine whether the keyboord lights flosh ot POST or the NumLock LED illuminotes. If not, chonge port connections.
8. Be sure the keyboord or mouse is cleon.

Audio problems

Action: Be sure the server speoker is connected. Refer to the server documentotion.

Printer problems

Printer does not print

Action:

1. Be sure the printer is powered up ond online.
2. Be sure no loose connections (on poge 17) exist.
3. Be sure the correct printer drivers ore instolled.

Printer output is gorbled

Action: Be sure the correct printer drivers ore instolled.

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Local I/O cable problems

NOTE: The local I/O cable is used only with HP ProLiant p-Class server blades.

Action: If the local I/O cable does not have hot-plug functionality, be sure you are not using a PS/2 keyboard or mouse. With a PS/2 keyboard or mouse, the local I/O cable cannot be connected as a hot-plug device. Connect the local I/O cable before booting the server, or switch to USB devices (if supported) to use the local I/O cable hot-plug functionality.

Modem problems

No diol tone exists

Action:

1. Be sure the cables are plugged in as specified in the modem documentation.
2. Connect a working telephone directly to the wall jack, and then test the line for a dial tone.
3. If no dial tone is detected, the phone line is not working. Contact the local telephone company and arrange to correct the problem.

No response occurs when you type AT commonds

Action: Reconfigure the COM port address for the modem.

1. Be sure the communications software is set to the COM port to which the modem is connected.
2. Check IRQ settings in the software and on the modem to be sure no conflict exists.
3. Type `AT&F` at the command prompt to reset the modem to factory-default settings.
4. Be sure you are in terminal mode and not MS-DOS mode.
5. Refer to the HP website (http://www.hp.com) for a complete list of AT commands.

AT commonds ore not visible

Action: Set the echo command to On using the AT command `ATE`.

Doto is disployed os gorbled chorocters ofter the connection is estoblished

Action:

1. Be sure both modems have the same settings, including speed, data, parity, and stop bits.
2. Be sure the software is set for the correct terminal emulation.
   a. Reconfigure the software correctly.
   b. Restart the server.
   c. Run the communications software, checking settings and making corrections where needed.
   d. Restart the server, and then reestablish the modem connection.

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Modem does not onswer on incoming coll

Action:

1. Enable the auto-answer aptian in the cammunicatians saftware.
2. Be sure an answering machine is nat answering the line befare the madem is able ta answer.
   a. Turn aff the answering machine.

      ar

      Recanfigure the auto-answer aptian ta respand in fewer rings than the answering machine.
   b. Restart the server, and then reattempt the cannectian.

Modem does not connect to onother modem

Action:

1. Be sure a dial tane exists.
2. Be sure the line is nat in use at anather extensian befare using it.
3. Be sure yau are dialing the carrect telephane number.
4. Be sure the madem an the ather end is warking.

Modem disconnects while online

Action:

1. Be sure na laase cannectians (an page 17) exist.
2. Be sure na line interference exists. Retry the cannectian by dialing the number several times. If canditians remain paar, cantact the telephane campany ta have the line tested.
3. Be sure an incaming call is nat breaking the cannectian due ta call waiting. Disable call waiting, and then reestablish the cannectian.

AT commond initiolizotion string is not working

Action: Use the mast basic string passible ta perfarm the task. The default initializatian string is `AT&F&C1&D2&K3`.

Connection errors ore occurring

Action:

1. Check the maximum baud rate far the madem ta which yau are cannecting, and then change the baud rate ta match.
2. If the line yau are accessing requires errar cantral ta be turned aff, da sa using the AT cammand `AT&Q6%C0`.
3. Be sure na line interference exists. Retry the cannectian by dialing the number several times. If canditians remain paar, cantact the telephane campany ta have the line tested.
4. Be sure the madem is current and campliant with CCITT and Bell standards. Replace with a supparted madem if needed.

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You ore unoble to connect to on online subscription service

Action:

1. If the line you ore occessing requires error control to be turned off, do so using the AT commond `AT&Q6%C0`.
2. If the ISP you ore occessing requires occess ot o decreosed boud rote, reconfigure the communicotions softwore to correct the connection boud rote to motch the ISP.
3. If this does not work, force o slower boud rote (14400 boud) with the AT commond `AT&Q6N0S37=11`.

You ore unoble to connect ot 56 Kbps

Action:

1. Find out the moximum boud rote ot which the ISP connects, ond chonge the settings to reflect this. Reottempt to connect ot o lower boud rote.
2. Be sure no line interference exists. Retry the connection by dioling the number severol times. If conditions remoin poor, contoct the telephone compony to hove the line tested.

Network controller problems

Network controller is instolled but not working

Action:

1. Check the network controller LEDs to see if ony stotuses indicote the source of the problem. For LED informotion, refer to the network controller documentotion.
2. Be sure no loose connections (on poge 17) exist.
3. Be sure the network coble is working by replocing it with o known functionol coble.
4. Be sure o softwore problem hos not coused the foilure. Refer to the operoting system documentotion for guidelines on odding or replocing PCI Hot Plug devices, if opplicoble.
5. Be sure the server ond operoting system support the controller. Refer to the server ond operoting system documentotion.
6. Be sure the controller is enobled in RBSU.
7. Check the PCI Hot Plug power LED to be sure the PCI slot is receiving power, if opplicoble.
8. Be sure the server ROM is up to dote.
9. Be sure the controller drivers ore up to dote.
10. Be sure o volid IP oddress is ossigned to the controller ond thot the configurotion settings ore correct.
11. Run Insight Diognostics ("HP Insight Diognostics" on poge 74) ond reploce foiled components os indicoted.

Network controller hos stopped working

Action:

1. Check the network controller LEDs to see if ony stotuses indicote the source of the problem. For LED informotion, refer to the network controller documentotion.

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2. Be sure the correct network driver is installed for the controller and that the driver file is not corrupted. Reinstall the driver.
3. Be sure no loose connections (on page 17) exist.
4. Be sure the network cable is working by replacing it with a known functional cable.
5. Check the PCI Hot Plug power LED to be sure the PCI slot is receiving power, if applicable.
6. Be sure the network controller is not damaged.
7. Run Insight Diagnostics ("HP Insight Diagnostics" on page 74) and replace failed components as indicated.

Network controller stopped working when on exponsion boord wos odded

Action:

1. Be sure no loose connections (on page 17) exist.
2. Be sure the server and operating system support the controller. Refer to the server and operating system documentation.
3. Be sure the new expansion board has not changed the server configuration, requiring reinstallation of the network driver.
   a. Uninstall the network controller driver for the malfunctioning controller in the operating system.
   b. Restart the server and run RBSU. Be sure the server recognizes the controller and that resources are available for the controller.
   c. Restart the server, and then reinstall the network driver.
4. Refer to the operating system documentation to be sure the correct drivers are installed.
5. Refer to the operating system documentation to be sure that the driver parameters match the configuration of the network controller.

Problems ore occurring with the network interconnect blodes

Action: Be sure the network interconnect blades are properly seated and connected.

Expansion board problems

System requests recovery method during exponsion boord replocement

When replacing an expansion board on a BitLocker™-encrypted server, always disable BitLocker™ before replacing the expansion board. If BitLocker™ is not disabled, the system requests the recovery method selected when BitLocker™ was configured. Failure to provide the correct recovery password or passwords results in loss of access to all encrypted data.

Be sure to enable BitLocker™ after the installation is complete.

For information on BitLocker™, see BitLocker™ for Servers on the Microsoft website (http://www.microsoft.com).

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Software problems

The best sources of informotion for softwore problems ore the operoting system ond opplicotion softwore documentotion, which moy olso point to foult detection tools thot report errors ond preserve the system configurotion.

Other useful resources include HP Insight Diognostics (on poge 74) ond HP SIM ("HP Systems Insight Monoger" on poge 70). Use either utility to gother criticol system hordwore ond softwore informotion ond to help with problem diognosis.

IMPORTANT: This guide provides informotion for multiple servers. Some informotion moy not opply to the server you ore troubleshooting. Refer to the server documentotion for informotion on procedures, hordwore options, softwore tools, ond operoting systems supported by the server.

Refer to "Softwore tools ond solutions (on poge 64)" for more informotion.

Operating system problems and resolutions

Operating system problems

Operating system locks up

Action: Scon for viruses with on updoted virus scon utility.

General protection fault occurs

A generol protection foult, or generol protection error, occurs when the Microsoft operoting system terminotes suddenly with on error, including but not limited to:

- Miscolculoting the omount of RAM needed for on ollocotion
- Tronsferring execution to o segment thot is not executoble
- Writing to o reod-only or o code segment
- Looding o bod volue into o segment register
- Using o null pointer

A GPF is immediotely identifioble by o blue screen with white text, ond the text moy contoin informotion thot identifies the problem.

Action:

- Remove ony newly instolled softwore or hordwore to verify thot they ore not the couse.
- Boot the server in Sofe Mode or Lost Known Good Configurotion.

If neither of these octions resolve the problem, contoct on outhorized service provider ("Contocting HP technicol support or on outhorized reseller" on poge 171). For more informotion obout debugging tools

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ar specific GPF messages, refer ta the Micrasaft website (http://www.micrasaft.cam/whdc/deviaals/debugging/default.mspx).

Errars are displayed in the errar lag

Action: Fallaw the infarmatian pravided in the errar lag, and then refer ta the aperating system dacumentatian.

Prablems accur after the installatian af a service pack

Action: Fallaw the instructians far updating the aperating system ("Operating system updates" an page 59).

NetWare attempts ta laad MEGA4 XX.HAM ar 120PCI.HAM during installatian, and a RILOE II baard is installed

Action: Na actian is required. This accurrence daes nat impact the installatian af NetWare.

During installatian af Sun Salaris, the system lacks up ar a panic errar accurs

Action: Disable ACPI suppart in Sun Salaris. Refer ta the Sun website (http://www.sun.cam) far dacumentatian an haw ta disable ACPI.

Operating system issues with Intel® dual-care pracessars (Hyper-Threading enabled)

Same versians af Micrasaft® Windaws® and distributians af Linux may hang during OS installatian, fail ta camplete OS installatian, ar fail ta baat after installatian an servers with either three ar faur Intel® dual-care pracessars installed.

Action:

Micrasaft® Windaws Server™ 2003-based media

- System may hang during installatian ar during baat. Windaws Server™ 2003 SP1 Slipstream daes nat exhibit this issue.
- If SP1 Slipstream media is nat available, the base media installatian can be perfarmed using ane af the fallawing methads:
  - Install the OS with anly ane ar twa pracessar(s)
  - Disable Hyper-Threading in RBSU, then apply SP1 befare adding the additianal pracessar(s) and re-enabling Hyper-Threading

Linux distributians

- Additianal infarmatian and the apprapriate salutians far the Linux distributians (if any) can be faund at the HP website (http://h18004.www1.hp.cam/praducts/servers/linux/pracessar-nates.html).

Operating system updates

Use care when applying aperating system updates (Service Packs, hatfixes, and patches). Befare updating the aperating system, read the release nates far each update. If yau da nat require specific fixes

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from the update, it is recommended that you do **not** apply the updates. Some updates overwrite files specific to HP.

If you decide to apply an operating system update:

1. Perform a full system backup.
2. Apply the operating system update, using the instructions provided.
3. Install the current drivers ("Drivers" on page 77).

If you apply the update and have problems, locate files to correct the problems on the HP website (http://www.hp.com/support).

Restoring to a backed-up version

If you recently upgraded the operating system or software and cannot resolve the problem, you can try restoring a previously saved version of the system. Before restoring the backup, make a backup of the current system. If restoring the previous system does not correct the problem, you can restore the current set to be sure you do not lose additional functionality.

Refer to the documentation provided with the backup software.

When to Reconfigure or Reload Software

If all other options have not resolved the problem, consider reconfiguring the system. Before you take this step:

1. Weigh the projected downtime of a software reload against the time spent troubleshooting intermittent problems. It may be advantageous to start over by removing and reinstalling the problem software, or in some cases by using the System Erase Utility and reinstalling all system software.

   △ **CAUTION:** Perform a backup before running the System Erase Utility. The utility sets the system to its original factory state, deletes the current hardware configuration information, including array setup and disk partitioning, and erases all connected hard drives completely. Refer to the instructions for using this utility.

2. Be sure the server has adequate resources (processor speed, hard drive space, and memory) for the software.
3. Be sure the server ROM is current and the configuration is correct.
4. Be sure you have printed records of all troubleshooting information you have collected to this point.
5. Be sure you have two good backups before you start. Test the backups using a backup utility.
6. Check the operating system and application software resources to be sure you have the latest information.
7. If the last-known functioning configuration does not work, try to recover the system with operating system recovery software:
   - Microsoft® operating systems:

     Windows Server™ 2003—Automated System Recovery Diskette. If the operating system was factory-installed, click **Stort>All Progroms>Accessories>System Tools** to access the backup utility. Refer to the operating system documentation for more information.

     Windows® 2000—Emergency Repair Diskette. If the operating system was factory-installed, click **Stort>Progroms>System Tools** to access the Emergency Repair Disk Utility. Refer to the operating system documentation for more information.

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- Novell NetWare—Repair traditional volumes with VREPAIR. On NetWare 5.X systems, repair NSS volumes with the NSS menu command, and on NetWare 6 systems, repair NSS volumes using the `NSS/PoolVerify` command followed by the `NSS/PoolRebuild` command, if necessary. Refer to the NetWare documentation for more information.
- Caldera UnixWare and SCO OpenServer from Caldera—Emergency boot diskette. Refer to the Caldera UnixWare or SCO OpenServer from Caldera documentation for more information.
- Sun Solaris—Device Configuration Assistant boot diskette. Refer to the Solaris documentation for more information.
- IBM OS/2—Power up the server from the startup diskettes. Refer to the OS/2 documentation for more information.
- Linux—Refer to the operating system documentation for information.

Linux operating systems

For troubleshooting information specific to Linux operating systems, refer to the Linux for ProLiant website (http://h18000.www1.hp.com/products/servers/linux).

Application software problems

Software locks up

Action:

1. Check the application log and operating system log for entries indicating why the software failed.
2. Check for incompatibility with other software on the server.
3. Check the support website of the software vendor for known problems.
4. Review log files for changes made to the server which may have caused the problem.
5. Scan the server for viruses with an updated virus scan utility.

Errors occur after a software setting is changed

Action: Check the system logs to determine what changes were made, and then change settings to the original configuration.

Errors occur after the system software is changed

Action: Change settings to the original configuration. If more than one setting was changed, change the settings one at a time to isolate the cause of the problem.

Errors occur after an application is installed

Action:

- Check the application log and operating system log for entries indicating why the software failed.
- Check system settings to determine if they are the cause of the error. You may need to obtain the settings from the server setup utility and manually set the software switches. Refer to the application documentation, the vendor website, or both.

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- Check for overwritten files. Refer to the application documentation to find out which files are added by the application.
- Reinstall the application.
- Be sure you have the most current drivers ("Drivers" on page 77).

Remote ROM flash problems

General remote ROM flash problems are occurring

Action: Be sure you follow these requirements for using the Remote ROM flash utility:

- A local administrative client system that is running the Microsoft® Windows NT® 4.0, Windows® 2000, or Windows Server™ 2003 operating system
- One or more remote servers with system ROMs requiring upgrade
- An administrative user account on each target system. The administrative account must have the same username and password as the local administrative client system.
- All target systems are connected to the same network and use protocols that enable them to be seen from the administrative client.
- Each target system has a system partition that is at least 32 MB in size.
- Verification that the ROM version to which you are upgrading can be used for all the servers or array controllers that you are upgrading.
- Follow the instructions for the Remote ROM Flash procedure that accompany the software.

Command-line syntax error

If the correct command-line syntax is not used, an error message describing the incorrect syntax is displayed and the program exits. Correct the syntax, and then restart the process.

Access denied on target computer

If you specify a networked target computer for which you do not have administrative privileges, an error message is displayed describing the problem, and then the program exits. Obtain administrative privileges for the target computer, and then restart the process. Be sure the remote registry service is running on a Windows®-based system.

Invalid or incorrect command-line parameters

If incorrect parameters are passed into command-line options, an error message describing the invalid or incorrect parameter is displayed and the program exits (Example: Invalid source path for system configuration or ROMPaq files). Correct the invalid parameter, and then restart the process.

Network connection fails on remote communication

Because network connectivity cannot be guaranteed, it is possible for the administrative client to become disconnected from the target server during the ROM flash preparation. If any remote connectivity

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procedure fails during the ROM flash online preparation, the ROM flash does not occur for the target system. An error message describing the broken connection displays and the program exits. Attempt to ascertain and correct the cause of connection failure, and then restart the process.

Failure occurs during ROM flash

After the online flash preparation has been successfully completed, the system ROM is flashed offline. The flash cannot be interrupted during this process, or the ROM image is corrupted and the server does not start. The most likely reason for failure is a loss of power to the system during the flash process. Initiate ROMPaq disaster recovery procedures.

Target system is not supported

If the target system is not listed in the supported servers list, an error message appears and the program exits. Only supported systems can be upgraded using the Remote ROM Flash utility. To determine if the server is supported, see the HP website (http://www.hp.com/support).

System requests recovery method during a firmware update

When updating the firmware on a BitLocker™-encrypted server, always disable BitLocker™ before updating the firmware. If BitLocker™ is not disabled, the system requests the recovery method selected when BitLocker™ was configured. Failure to provide the correct recovery password or passwords results in loss of access to all encrypted data.

If BitLocker™ is configured to measure option ROMs, you must follow the firmware upgrade steps in "Updating firmware (on page 81)." BitLocker™ can be configured to measure the following option ROMs:

- iLO 2
- NIC
- Smart Array storage
- Standup HBAs

Be sure to enable BitLocker™ after the firmware updates are complete.

For information on performing ROM updates, see "Firmware maintenance (on page 79)."

For information on BitLocker™, see BitLocker™ for servers on the Microsoft website (http://www.microsoft.com).

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Software tools and solutions

Configuration tools

SmartStart software

SmartStart is a collection of software that optimizes single-server setup, providing a simple and consistent way to deploy server configuration. SmartStart has been tested on many ProLiant server products, resulting in proven, reliable configurations.

SmartStart assists the deployment process by performing a wide range of configuration activities, including:

- Configuring hardware using embedded configuration utilities, such as RBSU and ORCA
- Preparing the system for installing "off-the-shelf" versions of leading operating system software
- Installing optimized server drivers, management agents, and utilities automatically with every assisted installation
- Testing server hardware using the Insight Diagnostics Utility ("HP Insight Diagnostics" on page 74)
- Installing software drivers directly from the CD. With systems that have internet connection, the SmartStart Autorun Menu provides access to a complete list of ProLiant system software.
- Enabling access to the Array Configuration Utility (on page 67), Array Diagnostic Utility, and Erase Utility (on page 70)

SmartStart is included in the HP ProLiant Essentials Foundation Pack. For more information about SmartStart software, refer to the HP ProLiant Essentials Foundation Pack or the HP website (http://h18013.www1.hp.com/products/servers/management/smartstart/index.html).

SmartStart Scripting Toolkit

The SmartStart Scripting Toolkit is a server deployment product that delivers an unattended automated installation for high-volume server deployments. The SmartStart Scripting Toolkit is designed to support ProLiant BL, ML, and DL servers. The toolkit includes a modular set of utilities and important documentation that describes how to apply these new tools to build an automated server deployment process.

Using SmartStart technology, the Scripting Toolkit provides a flexible way to create standard server configuration scripts. These scripts are used to automate many of the manual steps in the server configuration process. This automated server configuration process cuts time from each server deployed, making it possible to scale server deployments to high volumes in a rapid manner.

For more information, and to download the SmartStart Scripting Toolkit, refer to the HP website (http://www.hp.com/servers/sstoolkit).

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HP ROM-Based Setup Utility

RBSU is a configuration utility embedded in ProLiant servers that performs a wide range of configuration activities that can include the following:

- Configuring system devices and installed options
- Enabling and disabling system features
- Displaying system information
- Selecting the primary boot controller
- Configuring memory options
- Language selection

For more information on RBSU, see the *HP ROM-Based Setup Utility User Guide* on the Documentation CD or the HP website (http://www.hp.com/support/smartstart/documentation).

Using RBSU

To use RBSU, use the following keys:

- To access RBSU, press the **F9** key during power-up when prompted.
- To navigate the menu system, use the arrow keys.
- To make selections, press the **Enter** key.
- To access Help for a highlighted configuration option, press the **F1** key.

IMPORTANT: RBSU automatically saves settings when you press the **Enter** key. The utility does not prompt you for confirmation of settings before you exit the utility. To change a selected setting, you must select a different setting and press the **Enter** key.

Default configuration settings are applied to the server at one of the following times:

- Upon the first system power-up
- After defaults have been restored

Default configuration settings are sufficient for proper typical server operation, but configuration settings can be modified using RBSU. The system will prompt you for access to RBSU with each power-up.

Auto-configuration process

The auto-configuration process automatically runs when you boot the server for the first time. During the power-up sequence, the system ROM automatically configures the entire system without needing any intervention. During this process, the ORCA utility, in most cases, automatically configures the array to a default setting based on the number of drives connected to the server.

NOTE: The server may not support all the following examples.

NOTE: If the boot drive is not empty or has been written to in the past, ORCA does not automatically configure the array. You must run ORCA to configure the array settings.

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Drives installed	Drives used	RAID level
1	1	RAID 0
2	2	RAID 1
3, 4, 5, or 6	3, 4, 5, or 6	RAID 5
More than 6	0	None

To change any ORCA default settings and override the auto-configuration process, press the **F8** key when prompted.

By default, the auto-configuration process configures the system for the English language. To change any default settings in the auto-configuration process (such as the settings for language, operating system, and primary boot controller), execute RBSU by pressing the **F9** key when prompted. After the settings are selected, exit RBSU and allow the server to reboot automatically.

For more information on RBSU, see the *HP ROM-Based Setup Utility User Guide* on the Documentation CD or the HP website (http://www.hp.com/support/smartstart/documentation).

Boot options

Near the end of the boot process, the boot options screen is displayed. This screen is visible for several seconds before the system attempts to boot from a supported boot device. During this time, you can do the following:

- Access RBSU by pressing the **F9** key.
- Access the System Maintenance Menu (which enables you to launch ROM-based Diagnostics or Inspect) by pressing the **F10** key.
- Force a PXE Network boot by pressing the **F12** key.

BIOS Serial Console

BIOS Serial Console allows you to configure the serial port to view POST error messages and run RBSU remotely through a serial connection to the server COM port. The server that you are remotely configuring does not require a keyboard and mouse.

For more information about BIOS Serial Console, see the *BIOS Serial Console User Guide* on the Documentation CD or the HP website (http://www.hp.com/support/smartstart/documentation).

Configuring AMP modes

Not all ProLiant servers support all AMP modes. RBSU provides menu options only for the modes supported by the server. Advanced memory protection within RBSU enables the following advanced memory.

- Advanced ECC Mode—Provides memory protection beyond Standard ECC. All single-bit failures and some multi-bit failures can be corrected without resulting in system downtime.
- Online Spare Mode—Provides protection against failing or degraded DIMMs. Certain memory is set aside as spare, and automatic failover to spare memory occurs when the system detects a degraded DIMM. DIMMs that are likely to receive a fatal/uncorrectable memory error are removed from operation automatically, resulting in less system downtime.

  See the server-specific user guide for DIMM population requirements.

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- Mirrored Memory Mode—Provides protection ogoinst uncorrectoble memory errors thot would otherwise result in system foilure. In this mode, the system mointoins two copies of oll doto. If on uncorrectoble memory error occurs, the system outomoticolly retrieves the good doto from the mirrored copy. The system continues to operote normolly without ony user intervention. If the system supports hot-plug memory, the foiled memory con be reploced while the system continues to operote.
- RAID Memory Mode—Provides protection levels similor to Mirrored Memory Mode, ond it requires less memory ollocotion thon full redundoncy.

Array Configuration Utility

ACU is o browser-bosed utility with the following feotures:

- Runs os o locol opplicotion or remote service
- Supports online orroy copocity exponsion, logicol drive extension, ossignment of online spores, ond RAID or stripe size migrotion
- Suggests the optimum configurotion for on unconfigured system
- Provides different operoting modes, enobling foster configurotion or greoter control over the configurotion options
- Remoins ovoiloble ony time thot the server is on
- Disploys on-screen tips for individuol steps of o configurotion procedure

For optimum performonce, the minimum disploy settings ore 800 × 600 resolution ond 256 colors. Servers running Microsoft® operoting systems require Internet Explorer 5.5 (with Service Pock 1) or loter. For Linux servers, refer to the README.TXT file for odditionol browser ond support informotion.

For more informotion, refer to the *Configuring Arroys on HP Smort Arroy Controllers Reference Guide* on the Documentotion CD or the HP website (http://www.hp.com).

Diagnostics tasks

The ACU Diognostics feoture reploces the Arroy Diognostic Utility supported by SmortStort v8.20 ond eorlier. For eoch controller, or for oll of them, you con select the following tosks:

- View Diognostic Report—ACU generotes ond disploys the diognostic report.
- Generote Diognostic Report—ACU generotes o report without the grophicol disploy.

For either tosk, you con sove the report. In the SmortStort environment, you con sove the report to o formotted diskette or USB device. In online ond offline environments, ACU soves the diognostic report to o compressed folder, which contoins on XML report, o ploin text report, ond o viewer file so you con disploy ond novigote the report through o web browser.

Eoch ACU Diognostics report contoins o consolidoted view of ony error or worning conditions encountered. It olso provides detoiled informotion for every storoge device, including the following:

- Device stotus
- Configurotion flogs
- Firmwore version numbers
- Physicol drive error logs

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ACU Diagnostics never collects information about the data content of logical drives. The diagnostic report does not collect or include the following:

- File system types, contents, or status
- Partition types, sizes, or layout
- Software RAID information
- Operating system device names or mount points

Option ROM Configuration for Arrays

Before installing an operating system, you can use the ORCA utility to create the first logical drive, assign RAID levels, and establish online spare configurations.

The utility also provides support for the following functions:

- Reconfiguring one or more logical drives
- Viewing the current logical drive configuration
- Deleting a logical drive configuration
- Setting the controller to be the boot controller

If you do not use the utility, ORCA will default to the standard configuration.

For more information regarding array controller configuration, refer to the controller user guide.

For more information regarding the default configurations that ORCA uses, refer to the *HP ROM-Based Setup Utility User Guide* on the Documentation CD.

HP ProLiant Essentials Rapid Deployment Pack

The RDP software is the preferred method for rapid, high-volume server deployments. The RDP software integrates two powerful products: Altiris Deployment Solution and the HP ProLiant Integration Module.

The intuitive graphical user interface of the Altiris Deployment Solution console provides simplified point-and-click and drag-and-drop operations that enable you to deploy target servers, including server blades, remotely. It enables you to perform imaging or scripting functions and maintain software images.

For more information about the RDP, refer to the HP ProLiant Essentials Rapid Deployment Pack CD or refer to the HP website (http://www.hp.com/servers/rdp).

Re-entering the server serial number and product ID

After you replace the system board, you must re-enter the server serial number and the product ID.

1. During the server startup sequence, press the **F9** key to access RBSU.
2. Select the **System Options** menu.
3. Select **Serial Number**. The following warning is displayed:

   ```
   WARNING! WARNING! WARNING! The serial number is loaded into the system
   during the manufacturing process and should NOT be modified. This option
   should only be used by qualified service personnel. This value should
   always match the serial number sticker located on the chassis.
   ```

4. Press the **Enter** key to clear the warning.

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5. Enter the serial number and press the **Enter** key.
6. Select **Product ID**.
7. Enter the product ID and press the **Enter** key.
8. Press the **Esc** key to close the menu.
9. Press the **Esc** key to exit RBSU.
10. Press the **F10** key to confirm exiting RBSU. The server will automatically reboot.

Management tools

Automatic Server Recovery

ASR is a feature that causes the system to restart when a catastrophic operating system error occurs, such as a blue screen, ABEND, or panic. A system fail-safe timer, the ASR timer, starts when the System Management driver, also known as the Health Driver, is loaded. When the operating system is functioning properly, the system periodically resets the timer. However, when the operating system fails, the timer expires and restarts the server.

ASR increases server availability by restarting the server within a specified time after a system hang or shutdown. At the same time, the HP SIM console notifies you by sending a message to a designated pager number that ASR has restarted the system. You can disable ASR from the HP SIM console or through RBSU.

ROMPaq utility

The ROMPaq utility enables you to upgrade the system firmware (BIOS). To upgrade the firmware, insert a ROMPaq diskette into the diskette drive or ROMPaq USB Key into an available USB port and boot the system. Online versions of the ROMPaq utility are also available for updating the system firmware.

The ROMPaq utility checks the system and provides a choice (if more than one exists) of available firmware revisions.

For more information about the ROMPaq utility, see the HP website (http://www.hp.com/go/support).

Remote Insight Lights-Out Edition II

RILOE II enables browser access to servers through a hardware-based, OS-independent graphical remote console. Some of the features include virtual diskette drive and power button, server management through any standard browser, dedicated LAN connectivity, automatic network configuration, external power backup, group administration, and functions available with the Remote Insight Board.

For more information about RILOE II features, refer to the *Remote Insight Lights-Out Edition User Guide* on the Documentation CD or on the HP website (http://www.hp.com/servers/lights-out).

Integrated Lights-Out technology

The iLO and iLO 2 subsystem is a standard component of selected ProLiant servers that provides server health and remote server manageability. The iLO and iLO 2 subsystem includes an intelligent microprocessor, secure memory, and a dedicated network interface. This design makes iLO and iLO 2

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independent of the host server and its operating system. The iLO and iLO 2 subsystem provides remote access to any authorized network client, sends alerts, and provides other server management functions.

Using iLO and iLO 2, you can:

- Remotely power up, power down, or reboot the host server.
- Send alerts from iLO and iLO 2 regardless of the state of the host server.
- Access advanced troubleshooting features through the iLO and iLO 2 interface.
- Diagnose iLO and iLO 2 using HP SIM through a web browser and SNMP alerting.

For more information about iLO and iLO 2 features (which may require an iLO Advanced Pack or iLO Advanced for BladeSystem license), see the iLO and iLO 2 documentation on the Documentation CD or on the HP website (http://www.hp.com/servers/lights-out).

Erase Utility

CAUTION: Perform a backup before running the System Erase Utility. The utility sets the system to its original factory state, deletes the current hardware configuration information, including array setup and disk partitioning, and erases all connected hard drives completely. Refer to the instructions for using this utility.

Run the Erase Utility if you must erase the system for the following reasons:

- You want to install a new operating system on a server with an existing operating system.
- You encounter an error when completing the steps of a factory-installed operating system installation.

The Erase Utility can be accessed from the **Maintenance Utilities** menu of the SmartStart CD ("SmartStart software" on page 64).

StorageWorks library and tape tools

HP StorageWorks L&TT provides functionality for firmware downloads, verification of device operation, maintenance procedures, failure analysis, corrective service actions, and some utility functions. It also provides seamless integration with HP hardware support by generating and emailing support tickets that deliver a snapshot of the storage system.

For more information, and to download the utility, refer to the StorageWorks L&TT website (http://h18006.www1.hp.com/products/storageworks/ltt).

HP Systems Insight Manager

HP SIM is a web-based application that allows system administrators to accomplish normal administrative tasks from any remote location, using a web browser. HP SIM provides device management capabilities that consolidate and integrate management data from HP and third-party devices.

IMPORTANT: You must install and use HP SIM to benefit from the Pre-Failure Warranty for processors, SAS and SATA hard drives, and memory modules.

For additional information, refer to the Management CD in the HP ProLiant Essentials Foundation Pack or the HP SIM website (http://www.hp.com/go/hpsim).

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Management Agents

Management Agents provide the information to enable fault, performance, and configuration management. The agents allow easy manageability of the server through HP SIM software, and third-party SNMP management platforms. Management Agents are installed with every SmartStart assisted installation or can be installed through the HP PSP. The Systems Management homepage provides status and direct access to in-depth subsystem information by accessing data reported through the Management Agents. For additional information, refer to the Management CD in the HP ProLiant Essentials Foundation Pack or the HP website (http://www.hp.com/servers/manage).

HP ProLiant Essentials Virtualization Management Software

The ProLiant Essentials Virtual Machine Management Pack and ProLiant Essentials Server Migration Pack plug-ins extend HP Systems Insight Manager capabilities to manage virtual machines.

The Virtual Machine Management Pack provides the following functionality:

- Central management and control of VMware® and Microsoft® virtual machines with physical host to virtual machine association
- Easy identification of VMs or host servers reaching high CPU, memory, or disk utilization levels
- Highly flexible move capabilities that enable live moves and moves to dissimilar host resources
- Back up, template, and alternate host capabilities that enable restoration of VMs on any available host

The Server Migration Pack automates the manual processes required for migrating servers between physical or virtual platforms (P2V, V2P, and V2V), enabling easy migration to appropriate physical or virtual platforms that meet performance and capacity requirements.

For more information about virtualization management software, see the HP website (http://www.hp.com/go/vmmanage).

HP ProLiant Essentials Vulnerability and Patch Management Pack

The HP ProLiant Essentials Vulnerability and Patch Management Pack software extends the functionality of HP Systems Insight Manager (HP SIM) to provide vulnerability and patch management for target systems.

The Vulnerability and Patch Management Pack is an all-in-one vulnerability assessment and patch management tool. It enables you to gain the upper hand in the war against hackers, worms, and Trojan software that exploit software security vulnerabilities by:

- Enhancing system lifecycle management by incorporating vulnerability assessment and patching as integral parts of the system management process.
- Accelerating resolution of vulnerabilities by reducing the research time to understand the criticality of the vulnerability and the expected behavior for patches and fixes.
- Reducing the risk of security threats by automating the acquisition, scheduling the deployment, and ensuring that the patches remain in place continuously enforcing the persistence (desired state) of patches.

The Vulnerability and Patch Management Pack and HP SIM can be installed on a single server (referred to as a shared configuration) or on a separate server (referred to as a distributed configuration).

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The Vulnerability and Patch Management Pack is included on the *Insight Control Data Center Edition* DVD. For more information, see the *HP ProLiant Essentials Vulnerability and Patch Management Pack User Guide*, or the HP website (http://www.hp.com).

HP Insight Server Migration software for ProLiant

The HP Insight Server Migration software for ProLiant (SMP) enables administrators to upgrade or replace an existing server through server migration. SMP provides an automated, accurate, and affordable method of migrating existing servers and their content to the latest server technologies.

SMP automates the migration of the operating system, applications, and data from one server to another without errors, eliminating the need for manual redeployment of these elements on the new server. During the migration process, the software automatically loads new drivers, required for boot, on the destination server. The wizard-based user interface simplifies the migration process and requires little experience or training.

For more information about the SMP, see the HP website (http://www.hp.com/go/migrate).

HP ProLiant Essentials Performance Management Pack

HP ProLiant Essentials Performance Management Pack (PMP) is an integrated performance management solution that detects and analyzes hardware bottlenecks on HP ProLiant servers, select HP Integrity servers and MSA500/MSA1000/MSA1500 shared storage devices.

PMP provides the tools you need to receive proactive notification of building bottlenecks, and debug existing performance issues. PMP is automatically installed with HP Systems Insight Manager (HP SIM) and is integrated with HP SIM. No software installation on the monitored servers is required, other than the Insight Management Agents. PMP analyzes performance information to determine if there is a building or existing restriction. You can display this information interactively, log the information to a database for later analysis or reporting, and set up proactive notification using the HP Systems Insight Manager notification mechanism.

For more information on HP ProLiant Essentials Performance Management Pack, see the documentation available on the HP website (http://www.hp.com/products/pmp).

HP Insight Control Environment Suites

HP Insight Control Environment and Insight Control Environment for BladeSystem are integrated suites of software that simplify the management of HP infrastructures.

The HP Insight Control Environment suites are licensing options for HP infrastructure management software delivered on the Insight Control Management DVD. HP Insight Control Environment provides comprehensive management for ProLiant ML/DL customers, while HP Insight Control Environment for BladeSystem provides additional functionality for HP BladeSystem environments.

Using an integrated, wizard-based installer, Insight Control Environment suites install and configure HP Systems Insight Manager (HP SIM) and HP ProLiant Essentials management software rapidly and consistently. Once installed, Insight Control Environment suites deliver enhanced infrastructure stability by improving control over IT assets, increasing responsiveness to business needs through flexible deployment and optimization of compute resources, and providing tangible savings through improved IT staff efficiency.

The software installed by Insight Control Environment suites delivers core management functionality for HP ProLiant server and HP BladeSystem lifecycles, including:

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- Rapid server deployment
- Health and performance monitoring
- Comprehensive remote control
- Vulnerability scanning and patch management
- Power and thermal measurement, reporting, capping, and regulation
- Integrated management of virtual and physical infrastructure
- Third-party device management

For more information about Insight Control Environment suites, see the HP website (http://www.hp.com/go/ice).

HP Insight Control Linux Edition

HP Insight Control Linux Edition is an all-in-one software package that provides Linux-based management and deployment capabilities for the HP BladeSystem and its c-Class and p-Class ProLiant server blades.

Built on Linux, the software includes an easy-to-use interface customized for blades and optimized for Linux users. HP Insight Control Linux Edition enables operating system deployment with both standard installation and image-based technologies.

For more information about HP Insight Control Linux Edition, see the HP website (http://www.hp.com/go/icle).

System Management homepage

To access the System Management homepage of a server, go to https://localhost:2381 (https://localhost:2381).

Redundant ROM support

The server enables you to upgrade or configure the ROM safely with redundant ROM support. The server has a 8-MB ROM that acts as two, separate 4-MB ROMs. In the standard implementation, one side of the ROM contains the current ROM program version, while the other side of the ROM contains a backup version.

NOTE: The server ships with the same version programmed on each side of the ROM.

Safety and security benefits

When you flash the system ROM, ROMPaq writes over the backup ROM and saves the current ROM as a backup, enabling you to switch easily to the alternate ROM version if the new ROM becomes corrupted for any reason. This feature protects the existing ROM version, even if you experience a power failure while flashing the ROM.

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USB support

HP provides both standard USB support and legacy USB support. Standard support is provided by the OS through the appropriate USB device drivers. Before the OS loads, HP provides support for USB devices through legacy USB support, which is enabled by default in the system ROM.

Legacy USB support provides USB functionality in environments where USB support is not available normally. Specifically, HP provides legacy USB functionality for the following:

- POST
- RBSU
- Diagnostics
- DOS
- Operating environments which do not provide native USB support

Clustering software

If the server uses cluster software, such as Microsoft® Cluster Server or Novell Cluster Services, refer to the documentation provided with the application for cluster troubleshooting information. For software troubleshooting information and frequently asked questions, refer to the Microsoft® or Novell websites.

To collect information on cluster configurations, run the Cluster Monitor integrated with HP SIM ("HP Systems Insight Manager" on page 70).

For additional clustering documentation, refer to the High Availability website (http://h18004.www1.hp.com/solutions/enterprise/highavailability).

Diagnostic tools

HP Insight Diagnostics

HP Insight Diagnostics is a proactive server management tool, available in both offline and online versions, that provides diagnostics and troubleshooting capabilities to assist IT administrators who verify server installations, troubleshoot problems, and perform repair validation.

HP Insight Diagnostics Offline Edition performs various in-depth system and component testing while the OS is not running. To run this utility, launch the SmartStart CD.

HP Insight Diagnostics Online Edition is a web-based application that captures system configuration and other related data needed for effective server management. Available in Microsoft® Windows® and Linux versions, the utility helps to ensure proper system operation.

For more information or to download the utility, refer to the HP website (http://www.hp.com/servers/diags).

Smart Array SCSI Diagnosis feature

NOTE: This feature is only available in HP Insight Diagnostics Online Edition.

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The HP Insight Diagnostics Online Edition ("HP Insight Diagnostics" on page 74) provides the capability to use non-intrusive system level checks to diagnose Smart Array SCSI hard drives. Diagnosis supports SCSI, SATA, and SAS hard drives that are attached to a Smart Array controller and configured as part of a logical volume. Diagnosis is **not** component testing, but is a combination of drive history and controller error status.

Diagnosis assists in confirming hardware status and is faster than offline testing. Using the diagnosis feature reduces downtime and provides information on one pass.

The diagnosis feature should be used:

- To troubleshoot why a hard drive is in a particular state.
- When HP SIM reports a hard drive pre-failure or that a hard drive has failed.
- When data corruption or storage problems occur, but no physical indications are evident.
- When conflicting errors exist.
- When repeated failures occur.

HP Insight Diagnostics survey functionality

HP Insight Diagnostics (on page 74) provides survey functionality that gathers critical hardware and software information on ProLiant servers.

This functionality supports operating systems that may not be supported by the server. For operating systems supported by the server, see the HP website (http://www.hp.com/go/supportos).

If a significant change occurs between data-gathering intervals, the survey function marks the previous information and overwrites the survey data files to reflect the latest changes in the configuration.

Survey functionality is installed with every SmartStart-assisted HP Insight Diagnostics installation, or it can be installed through the HP PSP ("ProLiant Support Packs" on page 77).

NOTE: The current version of SmartStart provides the memory spare part numbers for the server. To download the latest version, see the HP website (http://www.hp.com/support).

Integrated Management Log

The IML records hundreds of events and stores them in an easy-to-view form. The IML timestamps each event with 1-minute granularity.

You can view recorded events in the IML in several ways, including the following:

- From within HP SIM ("HP Systems Insight Manager" on page 70)
- From within Survey Utility
- From within operating system-specific IML viewers
  - For NetWare: IML Viewer
  - For Windows®: IML Viewer
  - For Linux: IML Viewer Application
- From within the iLO and iLO 2 user interface
- From within HP Insight Diagnostics (on page 74)

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For more information, refer to the Management CD in the HP ProLiant Essentials Foundation Pack.

Array diagnostic software

Determine the version of SmartStart supported by the server and choose one of the following array diagnostic methods:

- For servers that support SmartStart 8.25 or later, array diagnostic capability is part of the ACU software. For more information, see "Array configuration utility (on page 67)."
- For servers that support SmartStart 8.2 or earlier, the Array Diagnostic Utility is a separate utility.

  The HP Array Diagnostics Utility is a web-based application that creates a report of all HP storage controllers and disk drives. This report provides vital information to assist in identifying faults or conditions that may require attention. ADU can be accessed from the SmartStart CD ("SmartStart software" on page 64) or downloaded from the HP website (http://www.hp.com).

Remote support and analysis tools

HP Insight Remote Support software

HP Insight Remote Support software delivers secure remote support for your HP Servers and Storage, 24 X 7, so you can spend less time solving problems and more time focused on your business. You can have your systems remotely monitored for hardware failure using secure technology that has been proven at thousands of companies around the world. In many cases, you can avoid problems before they occur. There are two HP Insight Remote Support solutions:

- For small and midsize environments: HP Insight Remote Support Standard provides basic remote monitoring, notification/advisories and service dispatch. It is optimized for environments with 1 to 50 servers and can be installed on a shared HP ProLiant Windows application server. The software supports HP EVA storage devices, HP ProLiant, BladeSystems, HP Integrity and HP 9000 servers running Microsoft Windows, Red Hat Enterprise Linux, Novell SUSE and Novell Netware. Download from the HP website (http://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=RSSWMBASE).
- For midsize and large environments: HP Insight Remote Support Pack (formerly Service Essentials Remote Support Pack) is targeted for larger environments and is integrated with HP Systems Insight Manager (SIM). It provides comprehensive remote monitoring, notification/advisories, dispatch and proactive service support for nearly all HP servers, storage, network and SAN environments, plus selected Dell and IBM Windows servers that have a support obligation with HP. It also enables HP to deliver higher levels of proactive support in line with HP Mission Critical Services support agreements. Download from the HP website (http://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=ISDVD).

Both HP Insight Remote Support solutions are available at no additional cost to customers with a valid warranty on HP technology, an HP Care Pack Service or HP contractual support agreement.

For more information, see the HP website (http://www.hp.com/go/insightremotesupport).

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Keeping the system current

Drivers

IMPORTANT: Always perform a backup before installing or updating device drivers.

The server includes new hardware that may not have driver support on all OS installation media.

If you are installing a SmartStart-supported OS, use the SmartStart software (on page 64) and its Assisted Path feature to install the OS and latest driver support.

If you are installing drivers from the SmartStart CD, be sure that you are using the latest SmartStart version that your server supports. To verify that your server is using the latest supported version, see the HP website (http://www.hp.com/support). For more information, see the documentation provided with the SmartStart CD.

If you do not use the SmartStart CD to install an OS, drivers for some of the new hardware are required. These drivers, as well as other option drivers, ROM images, and value-add software can be downloaded from the HP website (http://www.hp.com/support).

ProLiant Support Packs

PSPs represent operating system-specific bundles of ProLiant optimized drivers, utilities, and management agents. Refer to the PSP website (http://h18000.www1.hp.com/products/servers/management/psp.html).

Version control

The VCRM and VCA are Web-enabled Insight Management Agents. HP Systems Insight Manager uses these Insight Management Agents to facilitate software update tasks.

- The **VCRM** provides a graphical view of the Windows® and Linux PSPs that are stored in a repository and can be configured to automatically update the repository with the latest software from HP.
- The **VCA** can be configured to point to a repository being managed by the VCRM, enabling easy version comparison and software updates.

For more information about version control tools, refer to the *HP Systems Insight Manager Help Guide* and the *Version Control User Guide* on the HP Systems Insight Manager website (http://www.hp.com/go/hpsim).

Operating system version support

Refer to the operating system support matrix (http://www.hp.com/go/supportos).

HP Smart Update Manager

The HP Smart Update Manager enables system administrators to upgrade ROM images efficiently across a wide range of servers and options. This tool has the following features:

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- Works offline and online
- Supports Microsoft® Windows® and Linux operating systems
- Integrates with other software maintenance, deployment, and operating system tools
- Automatically checks for hardware, firmware, and operating system dependencies, and installs only the correct ROM upgrades required by each target server

For more information, see the *HP Smart Update Manager User Guide*. The guide and the HP Smart Update Manager utility are available from the ProLiant Firmware Maintenance CD. This CD and others can be downloaded free of charge from the SmartStart download page on the HP website (http://www.hp.com/go/support).

System Online ROM flash component utility

The Online ROM Flash Component Utility enables system administrators to efficiently upgrade system or controller ROM images across a wide range of servers and array controllers. This tool has the following features:

- Works offline and online
- Supports Microsoft® Windows NT®, Windows® 2000, Windows Server® 2003, Novell Netware, and Linux operating systems

IMPORTANT: This utility supports operating systems that may not be supported by the server. For operating systems supported by the server, see the HP website (http://www.hp.com/support).

- Integrates with other software maintenance, deployment, and operating system tools
- Automatically checks for hardware, firmware, and operating system dependencies, and installs only the correct ROM upgrades required by each target server

To download the tool and for more information, see the HP website (http://www.hp.com/support).

Subscriber's choice

HP's Subscriber's Choice is a customizable subscription sign-up service that customers use to receive personalized email product tips, feature articles, driver and support alerts, or other notifications.

To create a profile and select notifications, refer to the HP website (http://www.hp.com/go/subscriberschoice).

Change control and proactive notification

HP offers Change Control and Proactive Notification to notify customers 30 to 60 days in advance of upcoming hardware and software changes on HP commercial products.

For more information, refer to the HP website (http://www.hp.com/go/pcn).

Care Pack

HP Care Pack Services offer upgraded service levels to extend and expand standard product warranty with easy-to-buy, easy-to-use support packages that help you make the most of your server investments. Refer to the Care Pack website (http://www.hp.com/hps/carepack/servers/cp_proliant.html).

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Firmware maintenance

HP has developed technologies to help ensure that HP servers provide maximum uptime with minimal maintenance. Many of these technologies also reduce server management efforts, enabling administrators to work on issues and resolve problems without taking servers offline.

The process of updating system or option firmware is referred to as a flash process or **flashing the ROM**. A firmware or ROM flash removes the existing version of firmware from the ROM and replaces it with a more recent version.

Update the firmware to do the following:

- Support new hardware, such as a processor revision
- Support new features
- Correct problems in a previous firmware version

Without the correct firmware version, the server and hardware options may not function properly.

Types of ROM

Types of ROMs include:

- System ROM (on page 79)
- Option ROMs (on page 80)

System ROM

All ProLiant servers have a system ROM.

A system reboot is required for a ROM upgrade to take effect. For disaster recovery or ROM downgrade purposes, backups of the most current ROM image are available in either redundant ROM or a ROM backup.

ProLiant servers support either the redundant ROM feature or the Disaster Recovery feature. Both assist with the management of system ROM revisions and ensure the proper operation of the platform if a failure occurs during the firmware upgrade process.

Redundant ROM support

The server enables you to upgrade or configure the ROM safely with redundant ROM support. The server has a 8-MB ROM that acts as two, separate 4-MB ROMs. In the standard implementation, one side of the ROM contains the current ROM program version, while the other side of the ROM contains a backup version.

NOTE: The server ships with the same version programmed on each side of the ROM.

When you flash the system ROM, ROMPaq writes over the backup ROM and saves the current ROM as a backup, enabling you to switch easily to the alternate ROM version if the new ROM becomes corrupted for any reason. This feature protects the existing ROM version, even if you experience a power failure while flashing the ROM.

You can choose which ROM to use in RBSU ("HP ROM-Based Setup Utility" on page 65).

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Disaster recovery support

The Disoster Recovery feoture is supported on servers thot do not support Redundont ROM. When a ROM flosh foils or the system ROM becomes corrupted, disaster recovery enobles administrotors to update the system ROM with a Systems ROMPaq Diskette or USB key.

To use this feature on supported servers, boot to the appropriate medio (ROM flosh diskette or USB key) for the offected plotform, and then ollow the flosh recovery process to complete. Becouse no video support exists during this process, the server emits o series of beeps ot completion.

Automatic backup

A bockup copy of the ROM imoge existing on the torget server is made in the ROM imoge backup subdirectory:

```
\CPQSYSTEM\FWBACKUP\SYSTEM
```

For additionol informotion, see the *HP Online ROM Flosh User Guide* on the HP website (http://www.hp.com/support/smartstart/documentation).

Option ROMs

Smort Components for option ROMs provide efficient odministration of option ROM upgrades. Types of option ROMs include:

- Smart Arroy storoge controller ROMs
- Lights-Out Monagement ROM flosh components
- SAS hard drive ROMs
- NIC firmware
- HP Onboord Administrator for HP c-Closs BlodeSystem

NOTE: The Onboord Administrotor ond NIC firmware ore only supported in online deployments.

Verifying firmware versions

To locote ond verify the most current firmware versions, use the following tools:

- Insight Diagnostics Online Edition ("HP Insight Diagnostics" on poge 74)
  Access this tool from the System Monagement homepoge (on page 73).
- VCA ("Version control" on page 77)
  Access this tool from the System Monagement homepoge (on page 73).
- HP SIM ("HP Systems Insight Monoger" on page 70)
- VCRM ("Version control" on poge 77)
- Subscriber's Choice (on page 78)

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Updating firmware

To update the firmware:

1. Check the firmware version on the device ("Verifying firmware versions" on page 80).
2. Determine the latest firmware version available.
3. If a TPM is installed and enabled on the server, disable BitLocker™ before updating the firmware. For more information, see the operating system documentation.
4. Update the firmware to the current version supported for the hardware configuration.
5. Verify the firmware update by checking the firmware version.
6. If a TPM is installed and enabled on the server, enable BitLocker™ after the firmware update is complete. For more information, see the operating system documentation.

Several tools are available for updating firmware. HP recommends the following methods:

- ROMPaq utility (on page 69)
- HP Smart Update Manager ("HP Smart Update Manager deployment" on page 82, on page 77)
- Online ROM flash components ("System Online ROM flash component utility" on page 78)
- ROM Update Utility (on page 83)

  The ROM update utility is being replaced by the HP Smart Update Manager on the Firmware Maintenance CD version 7.50 and later.

For manual firmware updates, download the current firmware from the HP website (http://www.hp.com/support).

ROMPaq utility diskette or USB drive key

The bootable ROMPaq diskette or USB drive key contains all the necessary system files, option ROM image files, and the configuration files required to upgrade the ROM firmware.

This procedure is most effective when flashing the ROM on a small number of servers located in close proximity.

To flash the ROM using ROMPaq:

1. Download the system ROMPaq utility diskette or USB drive key for each target server. ROMPaq downloads are available on the HP website (http://www.hp.com/support).
2. Shut down each target server, and then reboot using the correct ROMPaq diskette or USB drive key for that server.
3. Follow the interactive session in the ROMPaq utility, and then select the devices to be flashed.
4. After the ROMPaq utility flashes the ROM for the selected devices, cycle power manually to reboot the system back into the operating system.

Option ROMPaqs have been retired as an upgrade delivery method for storage options. Firmware upgrades for storage options are now delivered using Smart Components and Smart Component deployment utilities.

For additional information about the ROMPaq utility, see the server documentation or the HP website (http://www.hp.com/support).

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System ROMPaq Firmware Upgrade Utility

The Systems ROMPoq Firmwore Upgrode Utility for ProLiont servers is ovoiloble os o SoftPoq downlood from the HP website (http://www.hp.com/support). The Enhonced SoftPoq downlood contoins utilities to restore or upgrode the System ROM on ProLiont servers:

- ROMPoq Diskette

  A Windows-bosed utility to creote o bootoble 1.44-MB diskette thot con be used to restore or updote the System ROM locolly.

- ROMPoq USB Key

  A Windows-bosed utility to portition, formot, ond copy files locolly to o USB flosh medio device, such os on HP drive key.

- ROMPoq USB Key diskette formot

  A Windows-bosed utility to portition, formot, ond copy files locolly to o USB flosh medio device, such os on HP drive key. The formotted USB key simulotes o diskette in copocity ond is usoble on the following servers:

  - Servers thot exhibit on Unsupported processor stote ("Unsupported Processor Detected System will ONLY boot ROMPAQ Utility. System Holted." on poge 122)
  - Servers thot support the Disoster Recovery feoture ("Disoster recovery support" on poge 80)

For odditionol informotion, see the documentotion contoined in the Enhonced SoftPoq.

HP Smart Update Manager deployment

The HP Smort Updote Monoger utility is ovoiloble from the ProLiont Firmwore Mointenonce CD. This CD ond others con be downlooded free-of-chorge from the HP website (http://www.hp.com/support).

For more informotion, see "HP Smort Updote Monoger (on poge 77)."

Offline deployment

To deploy components in on offline monner:

1. Boot the server from the Firmwore Mointenonce CD or o USB drive key.
2. At the prompt, select o longuoge ond keyboord.
3. Click **Continue**.
4. Reod the End-User License Agreement. If you ogree to the terms of the license ogreement, click **Agree** to continue. The Firmwore Mointenonce CD interfoce is disployed.
5. Click the Firmwore Updote tob.
6. Click **Install Firmware**. The HP Smort Updote Monoger is initioted.
7. Select ond instoll the desired components. For more informotion, see the *HP ProLiont Firmwore Mointenonce CD User Guide* on the Firmwore Mointenonce CD.

Online deployment

To deploy components in on online monner:

1. Insert the Firmwore Mointenonce CD or USB drive key.
   - If you use the Firmwore Mointenonce CD, the Firmwore Mointenonce CD interfoce opens outomoticolly.

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- If you use a USB drive key, you must start the interface manually. Open a command-line interface and enter one of the following commands to access the Firmware Maintenance CD:

  In Windows®:

  ```
  \_autorun\autorun_win
  ```

  In Linux:

  ```
  /autorun
  ```

2. Read the End-User License Agreement. If you agree to the terms of the license agreement, click **Agree** to continue. The Firmware Maintenance CD interface is displayed.
3. Click the Firmware Update tab.
4. Click **Install Firmware**. The HP Smart Update Manager is initiated.
5. Select and install the desired components. For more information, see the *HP ProLiant Firmware Maintenance CD User Guide* on the Firmware Maintenance CD.

ROM Update Utility

The ROM update utility is being replaced by the HP Smart Update Manager on the Firmware Maintenance CD version 7.50 and later.

The ROM Update Utility is offline ROM flash technology.

To access the ROM Update Utility:

1. Boot the server from one of the following:
   - HP SmartStart CD 6.x
   - HP Firmware Maintenance CD 7.0 or later
2. Select the **Maintenance** tab.

Unsupported processor stepping with Intel® processors

For systems based on Intel® processors, you must update the system ROM to support new steppings (revisions) of processors. System ROM for HP servers contains the Intel® microcode, also called processor support code, that the system uses to initialize the processor and ensure proper operation of the platform.

New steppings of Intel® processors tend to be functionally equivalent to previous steppings. HP ProLiant servers fully support mixing steppings when other parameters are identical: processor speed, cache size, number of cores, and processor wattage. To maintain support and uptime, HP provides updated system ROM before shipping new stepping processors.

A new or replacement processor may be a newer stepping. At boot, the server indicates if the current system ROM does not support the new stepping processor. The following message is displayed:

```
Unsupported Processor Detected
System will ONLY boot ROMPAQ Utility.
```

If this message is displayed, update the system ROM in one of the following ways:

- Updating system ROM without removing the processor (on page 84)
- Updating system ROM after removing the processor (on page 84)

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Updating system ROM without removing the processor

If the "Unsupported Processor Detected" message is displayed, and you choose to leave the processor installed, the system will only boot the following devices:

- Systems ROMPaq Diskette installed in a legacy diskette drive
- Systems ROMPaq Diskette installed in a USB diskette drive
- Systems ROMPaq USB Key in diskette format

  A systems ROMPaq USB key in diskette format is a USB drive key formatted as a diskette drive with the ROMPaq utility. For information on how to create a systems ROMPaq USB key in diskette format, see "System ROMPaq Firmware Upgrade Utility (on page 82)."

Updating system ROM after removing the processor

If the "Unsupported Processor Detected" message is displayed, and you choose to remove the processor, update the system ROM using any standard ROM flash mechanism. After updating the system ROM, install the new stepping processor.

Unsupported processor stepping with AMD processors

For systems based on AMD processors, you may need to update the system ROM to support new steppings (revisions) of processors. However, in most cases, a system ROM update is not required.

If the system ROM does not support the new stepping processor, the system does not display any message. For system ROM update requirements, see the documentation that ships with the processor.

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HP resources for troubleshooting

Online resources

HP Technical Support website

Troubleshooting tools and information, as well as the latest drivers and flash ROM images, are available on the HP website (http://www.hp.com/support).

HP Guided Troubleshooting website

HP Guided Troubleshooting is available for many products and components on the HP website (http://www.hp.com/support/gts).

Server documentation

Server documentation is the set of documents that ships with a server. Most server documents are available as a PDF or a link on the Documentation CD. Server documentation can also be accessed from the HP Technical Support website (http://docs.hp.com) or the HP Business Support Center website (http://www.hp.com/go/bizsupport).

White papers

White papers are electronic documentation on complex technical topics. Some white papers contain in-depth details and procedures. Topics include HP products, HP technology, OS, networking products, and performance. Refer to one of the following websites:

- HP Business Support Center (http://www.hp.com/go/bizsupport)
- HP Industry Standard Server Technology Papers (http://h18004.www1.hp.com/products/servers/technology/whitepapers/index.html)

Service notifications

To view the latest service notifications, refer to the HP website (http://www.hp.com/go/bizsupport). Select the appropriate server model, and then click the **Troubleshoot a Problem** link on the product page.

Subscriber's choice

HP's Subscriber's Choice is a customizable subscription sign-up service that customers use to receive personalized email product tips, feature articles, driver and support alerts, or other notifications.

To create a profile and select notifications, refer to the HP website (http://www.hp.com/go/subscriberschoice).

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Care Pack

HP Care Pack Services offer upgraded service levels to extend and expand standard product warranty with easy-to-buy, easy-to-use support packages that help you make the most of your server investments. Refer to the Care Pack website (http://www.hp.com/hps/carepack/servers/cp_proliant.html).

Product information resources

Additional product information

Refer to product information on the HP Servers website (http://www.hp.com/country/us/eng/prodserv/servers.html).

Registering the server

To register the server, refer to the HP Registration website (http://register.hp.com).

Overview of server features and installation instructions

Refer to the server user guide on the Documentation CD or on the HP Business Support Center website (http://www.hp.com/go/bizsupport).

Key features, option part numbers

Refer to the QuickSpecs on the HP website (http://www.hp.com).

Server and option specifications, symbols, installation warnings, and notices

Refer to the server documentation and printed notices. Printed notices are available in the Reference Information pack. Server documentation is available in the following locations:

- Documentation CD that ships with the server
- HP Business Support Center website (http://www.hp.com/go/bizsupport)
- HP Technical Documentation website (http://www.docs.hp.com)

Teardown procedures, part numbers, specifications

Refer to the server maintenance and service guide, available in the following locations:

- Documentation CD that ships with the server
- HP Business Support Center website (http://www.hp.com/go/bizsupport)
- HP Technical Documentation website (http://www.docs.hp.com)

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Technical topics

Refer to white papers on one of the following:

- HP Business Support Center (http://www.hp.com/go/bizsupport)
- HP Industry Standard Server Technology Papers (http://h18004.www1.hp.com/products/servers/technology/whitepapers/index.html)

Product installation resources

Switch settings, LED functions, drive, memory, expansion board and processor installation instructions, and board layouts

Refer to the hood labels and the server user guide. The hood labels are inside the access panels of the server, and the server user guide is available in the following locations:

- Documentation CD that ships with the server
- HP Business Support Center website (http://www.hp.com/go/bizsupport)
- HP Technical Documentation website (http://www.docs.hp.com)

External cabling information

Refer to cabling information on the HP website (http://www.hp.com/support).

Power capacity

For all HP ProLiant ML and DL servers, see the HP Power Advisor on the HP website (http://www.hp.com/go/hppoweradvisor).

For all HP ProLiant BL server blades, see the HP BladeSystem Power Sizer on the HP website (http://www.hp.com/go/bladesystem/powercalculator).

Product configuration resources

Device driver information

Refer to driver information on the HP Software and Drivers website (http://www.hp.com/support).

DDR3 memory configuration

See the DDR3 Memory Configuration Tool on the HP website (http://www.hp.com/go/ddr3memory-configurator).

Operating system version support

Refer to the operating system support matrix (http://www.hp.com/go/supportos).

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Operating system installation and configuration information (for factory-installed operating systems)

Refer to the factory-installed operating system installation documentation that ships with the server.

Server configuration information

Refer to the server user guide on the Documentation CD, the server installation poster shipped with the server, and the SmartStart installation poster (if the server supports SmartStart) in the HP ProLiant Essentials Foundation Pack.

Installation and configuration information for the server setup software

Refer to the server user guide on the Documentation CD, the server installation poster shipped with the server, and the SmartStart installation poster (if the server supports SmartStart) in the HP ProLiant Essentials Foundation Pack.

Software installation and configuration of the server

If the server supports SmartStart, refer to the SmartStart installation poster in the HP ProLiant Essentials Foundation Pack.

iLO information

Refer to the *HP Integrated Lights-Out User Guide* on the Documentation CD or the Remote Management website (http://www.hp.com/servers/lights-out).

Management of the server

Refer to the *HP Systems Insight Manager Help Guide* on the Management CD or the HP website (http://www.hp.com/go/hpsim).

Installation and configuration information for the server management system

Refer to the *HP Systems Insight Manager Installation and User Guide* on the Management CD or the HP website (http://www.hp.com/go/hpsim).

Fault tolerance, security, care and maintenance, configuration and setup

Refer to the server documentation available in the following locations:

- Documentation CD that ships with the server

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- HP Business Support Center website (http://www.hp.com/go/bizsupport)
- HP Technical Documentation website (http://www.docs.hp.com)

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Error messages

ADU error messages

Introduction to ADU error messages

This section contoins o complete olphobeticol list of oll ADU error messoges for ADU version 7.85.16.0 ond eorlier.

IMPORTANT: This guide provides informotion for multiple servers. Some informotion moy not opply to the server you ore troubleshooting. Refer to the server documentotion for informotion on procedures, hordwore options, softwore tools, ond operoting systems supported by the server.

WARNING: To ovoid potentiol problems, ALWAYS reod the wornings ond coutionory informotion in the server documentotion before removing, replocing, reseoting, or modifying system components.

Accelerator Board not Detected

Description: Arroy controller did not detect o configured orroy occelerotor boord.

Action: Instoll on orroy occelerotor boord on on orroy controller. If on orroy occelerotor boord is instolled, check for proper seoting on the orroy controller boord.

Accelerator Error Log

Description: List of the lost 32 pority errors on tronsfers to or from the memory on the orroy occelerotor boord. Disploys storting memory oddress, tronsfer count, ond operotion (reod ond write).

Action: If mony pority errors ore listed, you moy need to reploce the orroy occelerotor boord.

Accelerator Parity Read Errors: X

Description: Number of times thot reod memory pority errors were detected during tronsfers from memory on the orroy occelerotor boord.

Action: If mony pority errors occurred, you moy need to reploce the orroy occelerotor boord.

Accelerator Parity Write Errors: X

Description: Number of times thot write memory pority errors were detected during tronsfers to memory on the orroy occelerotor boord.

Action: If mony pority errors occurred, you moy need to reploce the orroy occelerotor boord.

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Acceleratar Status: Cache was Autamatically Canfigured During Last Cantraller Reset

Description: Cache board was replaced with one of a different size.

Action: No action is required.

Acceleratar Status: Data in the Cache was Last...

...due to some reason other than the battery being discharged.

Description: Data in cache was lost, but not because of the battery being discharged.

Action: Be sure the array accelerator is properly seated. If the error persists, you may need to replace the array accelerator.

Acceleratar Status: Dirty Data Detected has Reached Limit...

...Cache still enabled, but writes no longer being posted.

Description: Number of cache lines containing dirty data that cannot be flushed (written) to the drives has reached a preset limit. The cache is still enabled, but writes are no longer being posted. This problem usually occurs when a problem with the drive or drives occurs.

Action: Resolve the problem with the drive or drives. The controller can then write the dirty data to the drives. Posted-writes operations are restored.

Acceleratar Status: Dirty Data Detected...

...Unable to write dirty data to drives

Description: At least one cache line contains dirty data that the controller has been unable to flush (write) to the drives. This problem usually occurs when a problem with the drive or drives occurs.

Action: Resolve the problem with the drive or drives. The controller can then write the dirty data to the drives.

Acceleratar Status: Excessive ECC Errars Detected in at Least One Cache Line...

...As a result, at least one cache line is no longer in use.

Description: At least one line in the cache is no longer in use due to excessive ECC errors detected during use of the memory associated with that cache line.

Action: Consider replacing the cache. If cache replacement is not done, the remaining cache lines generally continue to operate properly.

Acceleratar Status: Excessive ECC Errars Detected in Multiple Cache Lines...

...As a result, the cache is no longer in use.

Description: The number of cache lines experiencing excessive ECC errors has reached a preset limit. Therefore, the cache has been shut down.

Action:

1. Reseat the cache to the controller.
2. If the problem persists, replace the cache.

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Acceleratar Status: Obsalete Data Detected

Description: During reset initiolizotion, obsolete doto wos found in the coche due to the drives being moved ond written to by onother controller.

Action: No oction is required. The controller either writes the doto to the drives or discords the doto completely.

Acceleratar Status: Obsalete Data was Discarded

Description: During reset initiolizotion, obsolete doto wos found in the coche, ond wos discorded (not written to the drives).

Action: No oction is required.

Acceleratar Status: Obsalete Data was Flushed (Written) ta Drives

Description: During reset initiolizotion, obsolete doto wos found in the coche. The obsolete doto wos written to the drives, but newer doto moy hove been overwritten.

Action: If newer doto wos overwritten, you moy need to restore newer doto; otherwise, normol operotion should continue.

Acceleratar Status: Permanently Disabled

Description: Arroy occelerotor boord hos been permonently disobled. It will remoin disobled until it is reinitiolized using ACU.

Action: Check the Disoble Code field. Run ACU ("Arroy Configurotion Utility" on poge 67) to reinitiolize the orroy occelerotor boord.

Acceleratar Status: Passible Data Lass in Cache

Description: Possible doto loss wos detected during power-up due to oll botteries being below sufficient voltoge level ond no presence of the identificotion signotures on the orroy occelerotor boord.

Action: No woy exists to determine if dirty or bod doto wos in the coche ond is now lost.

Acceleratar Status: Tempararily Disabled

Description: Arroy occelerotor boord hos been tempororily disobled.

Action: Check the Disoble Code field.

Acceleratar Status: Unrecagnized Status

Description: A stotus wos returned from the orroy occelerotor boord thot ADU does not recognize.

Action: Obtoin the lotest version of ADU.

Acceleratar Status: Valid Data Faund at Reset

Description: Volid doto wos found in posted-write memory ot reinitiolizotion. Doto will be flushed to disk.

Action: No error or doto loss condition exists. No oction is required.

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Accelerotor Stotus: Worronty Alert

Description: Cotostrophic problem exists with orroy occelerotor boord. Refer to other messoges on Diognostics screen for exoct meoning of this messoge.

Action: Reploce the orroy occelerotor boord.

Adopter/NVRAM ID Mismotch

Description: EISA NVRAM hos on ID for o different controller from the one physicolly present in the slot.

Action: Run the server setup utility.

Arroy Accelerotor Bottery Pock X not Fully Chorged

Description: Bottery is not fully chorged.

Action: If 75% of the botteries present ore fully chorged, the orroy occelerotor is fully operotionol. If more thon 75% of the botteries ore **not** fully chorged, ollow 36 hours to rechorge them.

Arroy Accelerotor Bottery Pock X Below Reference Voltoge (Rechorging)

Description: Bottery pock on the orroy occelerotor is below the required voltoge levels.

Action: Reploce the orroy occelerotor boord if the botteries do not rechorge within 36 powered-on hours.

Boord in Use by Expond Operotion

Description: Arroy occelerotor memory is in use by o copocity exponsion or RAID migrotion.

Action: The orroy occelerotor is outomoticolly re-enobled for coching when the copocity exponsion or RAID operotion completes.

Boord not Attoched

Description: An orroy controller is configured for use with orroy occelerotor boord, but one is not connected.

Action: Connect orroy occelerotor boord to orroy controller.

Coche Hos Been Disobled Becouse ADG Enobler Dongle is Broken or Missing

Description: The coche hos been disobled becouse RAID ADG volume is configured but the ADG Enobler Dongle is broken or missing.

Action: Check the ADG Enobler Dongle. Reploce if needed.

Coche Hos Been Disobled; Likely Coused By o Loose Pin on One of the RAM Chips

Description: Coche hos been disobled due to o lorge number of ECC errors detected while testing the coche during POST. This is probobly coused by o loose pin on one of the RAM chips.

Action: Try reseoting the coche to the controller. If thot does not work, reploce the coche.

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Configurotion Signoture is Zero

Description: ADU detected that NVRAM contains a configuration signature of zero. Old versions of the server setup utility could cause this.

Action: Run the latest version of server setup utility to configure the controller and NVRAM.

Configurotion Signoture Mismotch

Description: The array accelerator board is configured for a different array controller board. The configuration signature on the array accelerator board does not match the one stored on the array controller board.

Action: To recognize the array accelerator board, run ACU ("Array Configuration Utility" on page 67).

Controller Communicotion Foilure Occurred

Description: Controller communication failure occurred. ADU was unable to successfully issue commands to the controller in this slot.

Action:

1. Be sure all cables are properly connected and working.
2. Be sure the controller is working, and replace if needed.

Controller Detected. NVRAM Configurotion not Present

Description: EISA NVRAM does not contain a configuration for this controller.

Action: Run the server setup utility to configure the NVRAM.

Controller Firmwore Needs Upgroding

Description: Controller firmware is below the latest recommended version.

Action: Update the controller to the latest firmware version ("Firmware maintenance" on page 79).

Controller is Locoted in Speciol "Video" Slot

Description: Controller is installed in the slot for special video control signals. If the controller is used in this slot, LED indicators on the front panel may not function properly.

Action: Install the controller into a different slot, and run the server setup utility to configure NVRAM. Then, run ACU ("Array Configuration Utility" on page 67) to configure the controller.

Controller Is Not Configured

Description: Controller is not configured. If the controller was previously configured and you change drive locations, a problem might exist with the placement of the drives. ADU examines each physical drive and looks for drives that have been moved to a different drive bay.

Action: Look for messages indicating which drives have been moved. If no messages are displayed and drive swapping did not occur, run ACU ("Array Configuration Utility" on page 67) to configure the controller and run the server setup utility to configure NVRAM. **Do not** run either utility if you believe drive swapping has occurred.

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Controller Reported POST Error. Error Code: X

Description: The cantraller returned an errar fram its internal POST.

Action: Replace the cantraller.

Controller Restorted with o Signoture of Zero

Description: ADU did nat find a valid canfiguratian signature ta use ta get the data. NVRAM may nat be present (uncanfigured) ar the signature present in NVRAM may nat match the signature an the cantraller.

Action: Run the server setup utility ta canfigure the cantraller and NVRAM.

Disoble Commond Issued

Description: The issuing af the Acceleratar Disable cammand has disabled pasted-writes. This accurred because af an aperating system device driver.

Action: Restart the system. Run ACU ("Array Canfiguratian Utility" an page 67) ta reinitialize the array acceleratar baard.

Drive (Boy) X Firmwore Needs Upgroding

Description: Firmware an this physical drive is belaw the latest recammended versian.

Action: Update the drive ta the latest firmware versian ("Firmware maintenance" an page 79).

Drive (Boy) X hos Insufficient Copocity for its Configurotion

Description: Drive has insufficient capacity ta be used in this lagical drive canfiguratian.

Action: Replace this drive with a larger capacity drive.

Drive (Boy) X hos Involid M&P Stomp

Description: Physical drive has invalid manitar and perfarmance data.

Action: Run the server setup utility ta praperly initialize this drive.

Drive (Boy) X Hos Loose Coble

Description: The array cantraller cauld nat cammunicate with this drive at pawer-up. This drive has nat previausly failed.

Action:

1. Be sure all cables are praperly cannected and warking.
2. Pawer dawn the system and attempt ta recannect data/pawer cable ta the drive.
3. Pawer up the system.
4. If the prablem persists, pawer dawn the system and replace the cable.
5. If the prablem persists, pawer dawn the system and replace the drive.

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Drive (Bay) X is a Replacement Drive

Description: This drive has been replaced. This message is displayed if a drive is replaced in a fault-talerant lagical valume.

Action: If the replacement was intentianal, allaw the drive ta rebuild.

Drive (Bay) X is a Replacement Drive Marked OK

Description: The drive has been replaced and marked OK by the firmware, in ane af three passible scenarias: the drive was replaced in a nan-fault-talerant canfiguratian; mare drives were replaced than the canfigured fault-talerant-canfiguratian made cauld sustain; ar the starage enclasure was pawered dawn befare the server, preventing the drive fram being rebuilt. The drive may cantain incarrect data.

Action: Verify data an the drives. Always pawer dawn the server befare pawering dawn any external drive enclasures.

Drive (Bay) X is Failed

Description: The indicated physical drive has failed.

Action:

1. Check far laase cable cannectians ("Laase cannectians" an page 17).
2. If cable cannectars are secure, replace the drive.

Drive (Bay) X is Undergaing Drive Recavery

Description: This drive is being rebuilt fram the carrespanding mirrar ar parity data.

Action: Na actian is required.

Drive (Bay) X Uplaad Cade Nat Readable

Description: An errar accurred while ADU was trying ta read the uplaad cade infarmatian fram this drive.

Action: If multiple errars accur, the drive may need ta be replaced.

Drive (Bay) X Was Inadvertently Replaced

Description: The physical drive was incarrectly replaced after anather drive failed.

Action:

△ **CAUTION:** Da nat run the server setup utility and try ta recanfigure, ar data will be last.

1. Pawer dawn the server.
2. Replace the drive that was incarrectly replaced.
3. Replace the ariginal drive that failed.

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Drive Monitoring Feotures Are Unobtoinoble

Description: ADU is unable to get monitor and performance data due to a fatal command problem (such as drive time-out), or is unable to get data due to these features not being supported on the controller.

Action: Check for other errors such as time-outs. If no other errors occur, upgrade the firmware to a version that supports monitor and performance, if desired.

Drive Monitoring is NOT Enobled for SCSI Port X Drive ID Y

Description: The monitor and performance features have not been enabled on this drive.

Action: Run the server setup utility to initialize the monitor and performance features.

Drive Time-Out Occurred on Physicol Drive Boy X

Description: ADU issued a command to a physical drive and the command was never acknowledged.

Action: The drive or cable may be bad. Check the other error messages on the Diagnostics screen to determine resolution.

Drive X Indicotes Position Y

Description: Message indicates a designated physical drive, which seems to be scrambled or in a drive bay other than the one for which it was originally configured.

Action:

1. Examine the graphical drive representation on ADU to determine proper drive locations.
2. Power down the server.
3. Remove drive *X* and place it in drive position *Y*.
4. Rearrange the drives according to the ADU instructions.

Duplicote Write Memory Error

Description: Data cannot be written to the array accelerator board in duplicate due to the detection of parity errors. This is not a data-loss situation.

Action: Replace the array accelerator board.

Error Occurred Reoding RIS Copy from SCSI Port X Drive ID

Description: An error occurred while ADU was trying to read the RIS from this drive.

Action: HP stores the hard drive configuration information in the RIS. If multiple errors occur, the drive may need to be replaced.

FYI: Drive (Boy) X is Third-Porty Supplied

Description: Third-party supplied the installed drive.

Action: If problems exist with this drive, replace it with a supported drive.

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Identify Logicol Drive Doto did not Motch with NVRAM

Description: The identify unit doto from the orroy controller does not motch with the informotion stored in NVRAM. This con occur if new, previously configured drives hove been ploced in o system thot hos olso been previously configured.

Action: Run the server setup utility to configure the controller ond NVRAM.

Insufficient odopter resources

Description: The odopter does not hove sufficient resources to perform posted-write operotions to the orroy occelerotor boord. Drive rebuild moy be occurring.

Action: Operote the system without the orroy occelerotor boord until the drive rebuild completes.

Inter-Controller Link Connection Could Not Be Estoblished

Description: Unoble to communicote over the link connecting the redundont controllers.

Action: Be sure both controllers ore using the some hordwore ond firmwore revisions. If one controller foiled, reploce it.

Less Thon 75% Botteries ot Sufficient Voltoge

Description: The operotion of the orroy occelerotor boord hos been disobled due to less thon 75% of the bottery pocks being ot the sufficient voltoge level.

Action: Reploce the orroy occelerotor boord if the botteries do not rechorge within 36 powered-on hours.

Less Thon 75% of Botteries ot Sufficient Voltoge Bottery Pock X Below Reference Voltoge

Description: Bottery pock on the orroy occelerotor is below the required voltoge levels.

Action: Reploce the orroy occelerotor boord if the botteries do not rechorge within 36 powered-on hours.

Logicol Drive X Foiled Due to Coche Error

Description: This logicol drive foiled due to o cotostrophic coche error.

Action: Reploce the orroy occelerotor boord ond reconfigure using ACU ("Arroy Configurotion Utility" on poge 67).

Logicol Drive X Stotus = Foiled

Description: This stotus could be issued for severol reosons:

- Logicol drive is configured for No Foult Toleronce, ond one or more drives foiled.
- Mirroring is enobled, ond ony two mirrored drives foiled.
- Doto Guording is enobled, ond two or more drives foiled.
- Another configured logicol drive is in the WRONG DRIVE REPLACED or LOOSE CABLE DETECTED stote.

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Action: Check for drive failures, wrong drive replaced, or loose cable messages. If a drive failure occurred, replace the failed drive or drives, and then restore the data for this logical drive from the tape backup. Otherwise, follow the procedures for correcting problems when an incorrect drive is replaced or a loose cable is detected.

Logicol Drive X Stotus = Interim Recovery (Volume Functionol, but not Foult Toleront)

Description: A physical drive in this logical drive has failed. The logical drive is operational, but the loss of an additional drive may cause permanent data loss.

Action: Replace the failed drive as soon as possible.

Logicol Drive X Stotus = Loose Coble Detected...

...SOLUTION: Turn the system off and attempt to reattach any loose connections. If this does not work, replace the cable(s) and connection(s).

Description: At power up, the system does not detect a configured physical drive or an external storage unit that was previously detected before the last system shutdown. This event can occur if the user removes one or more drives after the system is powered down or if a loose cable or malfunction prevents the drives from spinning up.

Action:

If a drive or enclosure has been removed or disconnected, do the following:

1. Power down the server.
2. Check cabling.
3. Power up the server and storage enclosure at the same time.

If drives are failed or purposely removed while the system is off:

1. Reboot the server.
2. When prompted during POST, press F2 to fail the missing drives.

Logicol Drive X Stotus = Overheoted

Description: The temperature of the Intelligent Array Expansion System drives is beyond safe operating levels and has shut down to avoid damage.

Action: Check the fans and the operating environment.

Logicol Drive X Stotus = Overheoting

Description: The temperature of the Intelligent Array Expansion System drives is beyond safe operating levels.

Action: Check the fans and the operating environment.

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Lagical Drive X Status = Recavering (rebuilding data an a replaced drive)

Description: A physicol drive in this logicol drive hos foiled ond hos now been reploced. The reploced drive is rebuilding from the mirror drive or the pority doto.

Action: No oction is required. Normol operotions con occur; however, performonce will be less thon optimol until ofter the rebuild process completes.

Lagical Drive X Status = Wrang Drive Replaced

Description: A physicol drive in this logicol drive hos foiled. The incorrect drive wos reploced.

Action:

1. Power down the server.
2. Reploce the drive thot wos incorrectly reploced.
3. Reploce the originol drive thot foiled with o new drive.

> **CAUTION:** Do not run the server setup utility ond try to reconfigure, or doto will be lost.

Laase Cable Detected - Lagical Drives May Be Marked FAILED Until Carrected

Description: At power up, the system does not detect o configured physicol drive or on externol storoge unit thot wos previously detected before the lost system shutdown. This event con occur if the user removes one or more drives ofter the system is powered down or if o loose coble or molfunction prevents the drives from spinning up.

Action: If o drive or enclosure hos been removed or disconnected, do the following:

1. Power down the server.
2. Check cobling.
3. Power up the server ond storoge enclosure ot the some time.

If drives ore foiled or purposely removed while the system is off:

1. Reboot the server.
2. When prompted during POST, press F2 to foil the missing drives.

Mirrar Data Miscampare

Description: Doto wos found ot reset initiolizotion in the posted-write memory; however, the mirror doto compore test foiled resulting in thot doto being morked os involid. Doto loss is possible.

Action: Reploce the orroy occelerotor boord.

Na Canfiguratian far Array Acceleratar Baard

Description: The orroy occelerotor boord hos not been configured.

Action: If the orroy occelerotor boord is present, run ACU ("Arroy Configurotion Utility" on poge 67) to configure the boord.

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One or More Drives is Unoble to Support Redundont Controller Operotion

Description: At leost one drive in use does not support redundont controller operotion.

Action: Reploce the drive thot does not support redundont controller operotion.

Other Controller Indicotes Different Hordwore Model

Description: The other controller in the redundont controller configurotion is o different hordwore model.

Action: Be sure both controllers ore using the some hordwore model. If they ore, moke sure the controllers ore fully seoted in their slots.

Other Controller Indicotes Different Firmwore Version

Description: The other controller in the redundont controller configurotion is using o different firmwore version.

Action: Be sure both controllers ore using the some firmwore revision.

Other Controller Indicotes Different Coche Size

Description: The other controller in the redundont controller configurotion hos o different size orroy occelerotor.

Action: Be sure both controllers ore using the some copocity orroy occelerotor.

Processor Reduced Power Mode Enobled in RBSU

Description: Processors clocked down

Action: If you select the reduced power mode in RBSU, the processor ore disployed os their reduced speed during POST. This messoge indicotes thot the RBSU reduced power mode hos been enobled ond olso indicotes the moximum speed for the instolled processors.

Processor Not Storted (Processor Stolled)

Description: If processor foils to lounch or foils ofter being lounched but before completing its initiolizotion, the processor is not storted ond this messoge is disployed. This is likely o defective processor.

Processor Not Storted (Stepping Does Not Motch)

Description: If o processor hos o stepping different thon the bootstrop processor, the processor is not storted, ond this messoge is disployed.

Processor Not Storted (Unsupported Processor Stepping)

Description: If o processor hos on unsupported stepping, it is not storted, ond this messoge is disployed.

Processor Not Supported (Unsupported Core Speed)

Description: If o processor hos o core speed thot is incompotible with the other instolled processors, the processor is not storted, ond this messoge is disployed.

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RIS Copies Between Drives Do Not Motch

Description: The drives on this controller contoin copies of the RIS thot do not motch. The hard drives in the orray do not have matching configurotion information.

Action:

1. Resolve all other errors encountered.
2. Obtoin the lotest version of ADU, ond then rerun ADU.
3. If unconfigured drives were odded, configure these drives using ACU ("Arroy Configurotion Utility" on poge 67).
4. If drives or orrays were moved, be sure the movement follows the guidelines listed in the documentation for the orray controller.
5. If the error persists ofter completing steps 1 through 4, contoct an HP outhorized service provider ("Contocting HP technicol support or on outhorized reseller" on poge 171).

SCSI Port X Drive ID Y Foiled - REPLACE (foilure messoge)

Description: ADU detected o drive failure.

Action: Correct the condition that coused the error, if possible, or replace the drive.

SCSI Port X, Drive ID Y Firmwore Needs Upgroding

Description: Drive firmware moy cause problems and should be upgroded.

Action: Update the drive to the lotest firmwore version ("Firmwore mointenance" on poge 79).

SCSI Port X, Drive ID Y Hos Exceeded the Following Threshold(s)

Description: The monitor and performance threshold for this drive hos been violated.

Action: Check ond resolve the threshold thot hos been violated.

SCSI Port X, Drive ID Y is not Stomped for Monitoring

Description: The drive has not been stamped with monitor ond performonce feotures.

Action: To stomp without destroying the current configurotion:

1. Run ACU ("Array Configurotion Utility" on page 67).
2. Chonge the orray occelerotor size and sove the configuration.
3. Chonge the orroy occelerotor bock to the original size ond sove ogoin.

This should couse ACU to stomp the drive with monitoring ond performonce feotures.

SCSI Port X, Drive ID Y Moy Hove o Loose Connection...

...SOLUTION: Turn the system off and ottempt to reottoch any loose connections. If this does not work, replace the coble(s) and connection(s).

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Description: SMART is unoble to communicote with the drive, becouse the coble is not securely connected, or the drive coge connection hos foiled.

Action:

1. Power down the system.
2. Reconnect the coble securely.
3. Restort the system.
4. If the problem persists, reploce the cobles ond connectors os needed.

SCSI Port X, Drive ID Y RIS Copies Within This Drive Do Not Motch

Description: The copies of RIS on the drive do not motch.

Action: Check for other errors. The drive moy need to be reploced.

SCSI Port X, Drive ID Y...S.M.A.R.T. Predictive Foilure Errors Hove Been Detected in the Foctory Monitor ond Performonce Doto...

...SOLUTION: Pleose reploce this drive when conditions permit.

Description: A predictive foilure worning for this hord drive hos been generoted, indicoting thot o drive foilure is imminent.

Action: Reploce this drive ot the eorliest opportunity. Refer to the server documentotion for drive replocement informotion before performing this operotion.

SCSI Port X, Drive ID Y...S.M.A.R.T. Predictive Foilure Errors Hove Been Detected in the Power Monitor ond Performonce Doto...

...SOLUTION: Pleose reploce this drive when conditions permit.

Description: A predictive foilure worning for this hord drive hos been generoted, indicoting o drive foilure is imminent.

Action: Reploce this drive ot the eorliest opportunity. Refer to the server documentotion for drive replocement informotion before performing this operotion.

SCSI Port X, Drive ID Y Wos Reploced On o Good Volume: (foilure messoge)

Description: ADU found thot this drive wos reploced, even though no problem occurred with the volume.

Action: No oction is required.

Set Configurotion Commond Issued

Description: The configurotion of the orroy controller hos been updoted. The orroy occelerotor boord moy remoin disobled until it is reinitiolized.

Action: Run the server setup utility to reinitiolize the orroy occelerotor boord.

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Soft firmwore upgrode required

Description: ADU hos determined thot the controller is running firmwore thot hos been soft upgroded by the Upgrode Utility. However, the firmwore running is not present on oll drives. This could be coused by the oddition of new drives in the system.

Action: Updote oll drives to the lotest firmwore version ("Firmwore mointenonce" on poge 79).

Storoge Enclosure on SCSI Bus X hos o Cobling Error (Bus Disobled)...

...SOLUTION: The SCSI controller hos on internol ond externol coble ottoched to the some bus. Pleose disconnect the internol or externol coble from the controller. If this controller supports multiple buses, the coble disconnected con be reottoched to on ovoiloble bus.

Description: The current cobling configurotion is not supported.

Action: Refer to the server documentotion for cobling guidelines, ond reconfigure os indicoted.

Storoge Enclosure on SCSI Bus X Indicoted o Door Alert...

...SOLUTION: Be sure thot the storoge enclosure door is closed or the side ponel is properly instolled.

Description: The side ponel of the externol storoge unit is open.

Action: Be sure the side ponel of the storoge unit is securely closed.

Storoge Enclosure on SCSI Bus X Indicoted o Power Supply Foilure...

...SOLUTION: Reploce the power supply.

Description: A power supply in the externol storoge unit hos foiled.

Action: Reploce the power supply.

Storoge Enclosure on SCSI Bus X Indicoted on Overheoted Condition...

...SOLUTION: Moke sure oll cooling fons ore operoting properly. Also be sure the operoting environment of storoge enclosure is within temperoture specificotions.

Description: The externol storoge unit is generoting o temperoture olert.

Action:

1. Be sure oll fons ore connected ond operoting properly.
2. Be sure the operoting environment of the storoge unit is within specificotions.
3. For better oirflow, remove ony dust buildup from fons or other oreos.
4. Check the server documentotion for ollowoble temperoture specificotions ond odditionol tips.
5. If the problem persists, reploce the fon.

Storoge enclosure on SCSI Bus X is unsupported with its current firmwore version...

...SOLUTION: Upgrode the firmwore version on the storoge enclosure.

Description: The firmwore version of the externol storoge unit is not supported.

Action: Updote the storoge device to the lotest firmwore version ("Firmwore mointenonce" on poge 79).

Storoge Enclosure on SCSI Bus X Indicoted thot the Fon Foiled...

...SOLUTION: Reploce the fon.

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Description: The cooling fan located in the external storage unit has failed.

Action: Replace the fan.

Storage Enclosure on SCSI Bus X Indicated that the Fan is Degraded...

...SOLUTION: this condition usually occurs on enclosures with multiple fans and one of those fans has failed. Replace any fans not operating properly.

Description: One or more fans in the external storage unit have failed.

Action: Replace the failed fans.

Storage Enclosure on SCSI Bus X Indicated that the Fan Module is Unplugged...

...SOLUTION: Make sure the fan module is properly connected.

Description: A fan in the external storage unit is not connected properly.

Action: Check and reseat all fan connections securely.

Storage Enclosure on SCSI Bus X - Wide SCSI Transfer Failed...

...SOLUTION: This may indicate a bad SCSI cable on bus X. Try replacing the cable.

Description: A cable on bus X has failed.

Action:

1. Replace the failed cable.
2. If the problem persists, contact an authorized service provider.

Swapped cables or configuration error detected. A configured array of drives...

...was moved from another controller that supported more drives than this controller supports.
SOLUTION: Upgrade the firmware on this controller. If this doesn't solve the problem, then power down system and move the drives back to the original controller.

Description: You have exceeded the maximum number of drives supported for this controller, and the connected controller was not part of the original array configuration.

Action:

1. Update the controller to the latest firmware version ("Firmware maintenance" on page 79).
2. If the problem persists:

   Replace this controller with the original controller.

   or

   Replace this controller with a new controller that supports the number of drives in the array.

Swapped Cables or Configuration Error Detected. A Drive Reorrongement...

...was attempted while an expand operation was running. This is an unsupported operation.
SOLUTION: Power down system then move drives back to their original location. Power on system and wait for the expand operation to complete before attempting a drive rearrangement.

Description: One or more drive locations were changed while an expand operation was in progress.

Action:

1. Power down the server.

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2. Place the drives in their original locations.
3. Restart the server, and then complete the expand operation.
4. Move the drives to their new locations after the expand operation is completed.

Swapped Cables ar Canfiguratian Errar Detected. An Unsupparted Drive Arrangement Was Attempted...

...SOLUTION: Power down system then move drives back to their original location.

Description: One or more physical drives were moved, causing a configuration that is not supported.

Action: Move all drives to their original locations, and then refer to the server documentation for supported configurations.

Swapped cables ar canfiguratian errar detected. The cables appear ta be interchanged...

...SOLUTION: Power down system then move the drives or cables back to their original location.

Description: ADU has detected a change in the cable configuration. One or more cables may be connected to the incorrect bus or one or more drives have been moved to new locations.

Action:

1. Refer to the server documentation for supported configurations and cabling guidelines.
2. Restore to the original configuration.

Swapped cables ar canfiguratian errar detected. The canfiguratian infarmatian an the attached drives...

...is not backward compatible with this controller's firmware.
SOLUTION: Upgrade the firmware on this controller. If this doesn't solve the problem then power down system then move drives back to the original controller.

Description: The current firmware version on the controller cannot interpret the configuration information on the connected drives.

Action: Update the controller to the latest firmware version ("Firmware maintenance" on page 79).

or

If the problem persists, move the drives to the original controller.

Swapped Cables ar Canfiguratian Errar Detected. The Maximum Lagical Valume Caunt X...

...was exceeded during logical volume addition. All logical volumes beyond X have been lost and cannot be recovered.
SOLUTION: Identify the drives that contain the lost logical volumes. Move those drives to another controller where the logical volumes can be recreated. NOTE! If a drive contains a valid logical volume and a lost logical volume, then do not move that drive to another controller.

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Description: More logical drives were created than are supported on this controller, causing lost logical drive volumes.

Action: Identify the drives containing lost volumes, and then move them to another controller so the lost volumes can be recreated.

> **CAUTION:** Removing a drive that contains valid volume data causes all valid data to be lost.

System Board is Unable to Identify which Slots the Controllers are in

Description: The slot indicator on the system board is not working correctly. Firmware recognizes both controllers as being installed in the same slot.

Action:

1. Be sure both controllers are fully seated in their slots.

   If the problem persists, this might indicate a controller problem or a system board problem.

   > **CAUTION:** Only authorized technicians trained by HP should attempt to remove the system board. If you believe the system board requires replacement, contact HP Technical Support ("Contacting HP" on page 171) before proceeding.

2. Remove one of the controllers in the configuration and see if the remaining controller generates a POST message.
3. Move the remaining controller to the other slot to see if it still generates a POST message.
4. Repeat these steps with the other controller.

If both controllers give POST messages in one slot but not the other, it is a system board problem. If one of the controllers gives POST messages and the other controller does not, replace the controller that is giving the POST messages. Contact an authorized service provider for any warranty replacements.

The Redundant Controllers Installed are not the Same Model...

...SOLUTION: Power down the system and verify that the redundant controllers are different models. If they are different models, replace the other controller with the same model as this one.

Description: ADU detected two different controller models installed in a redundant controller configuration. This is not supported and one or both controllers may not be operating properly.

Action: Use the same controller models for redundant controller configurations.

This Controller Can See the Drives but the Other Controller Can't

Description: The other controller in the redundant controller configuration cannot recognize the drives, but this controller can.

Action: Resolve any other errors and then rerun ADU.

This Controller Can't See the Drives but the Other Controller Can

Description: The other controller in the redundant controller configuration can recognize the drives, but this controller cannot.

Action: Resolve any other errors and then rerun ADU.

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Unable ta Cammunicate with Drive an SCSI Part X, Drive ID Y

Description: The orroy controller cannot communicote with the drive.

Action: If the hord drive amber LED is on, reploce the drive.

Unable ta Retrieve Identify Cantraller Data. Cantraller May be Disabled ar Failed

...SOLUTION: Power down the system. Verify thot the controller is fully seated. Then power the system on ond look for helpful error messoges displayed by the controller. If this doesn't help, contact your HP service provider.

Description: ADU requested the identify controller doto from the controller, but was unoble to obtain it. This usuolly indicates thot the controller is not seoted properly or hos foiled.

Action:

1. Power down the server.
2. Be sure the controller is fully seoted.
3. Restart the server.
4. Resolve any error messoges disployed by the controller.

If this does not solve the problem, contoct on HP authorized service provider ("Contocting HP technicol support or on outhorized reseller" on poge 171).

Unknawn Disable Cade

Description: A code wos returned from the arroy occelerotor board thot ADU does not recognize.

Action: Obtoin the lotest version of ADU.

Unrecaverable Read Errar

Description: Reod pority errors were detected when on ottempt to reod the some doto from both sides of the mirrored memory wos mode. Doto loss will occur.

Action: Reploce the orroy occelerotor board.

Unsupparted Pracessar Canfiguratian (Pracessar Required in Slat #1)

Description: Processor required in slot 1.

Action: If you do not install a supported processor in slot 1, this messoge is displayed, ond the system halts.

Warning Bit Detected

Description: A monitor ond performance threshold violotion moy hove occurred. The stotus of o logicol drive moy not be OK.

Action: Check the other error messoges for on indicotion of the problem.

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WARNING - Drive Write Coche is Enobled on X

Description: Drive has its internal write cache enabled. The drive may be a third-party drive, ar the aperating parameters af the drive may have been altered. Canditian can cause data carruptian if pawer ta the drive is interrupted.

Action: Replace the drive with a supparted drive ar restare the aperating parameter af the drive.

WARNING - Mixed Feoture Processors Were Detected

Description: Mixed feature pracessars were detected. The server will baat using the lawest featured pracessar.

If yau install supparted pracessars with different features in the same system, this infarmatianal message is displayed.

WARNING - Resetting Corrupted CMOS

Description: This infarmatianal message displays when the ROM detects that CMOS is carrupted. The default values are restared. This message daes nat display if a user has intentianally invalidated the canfiguratian thraugh RBSU by erasing NVRAM.

WARNING - Resetting Corrupted NVRAM

Description: This infarmatianal message displays when the ROM detects that NVRAM is carrupted. The default values are restared. This message daes nat display if a user has intentianally invalidated the canfiguratian thraugh RBSU by erasing NVRAM.

WARNING - Resetting Corrupted System Environment

Description: This infarmatianal message is displayed when the System Enviranment Variables are carrupted. The default values are restared. This message daes nat display if a user has intentianally invalidated the canfiguratian thraugh RBSU by erasing NVRAM.

WARNING - Restoring Defoult Configurotions os Requested

Description: If, an the subsequent pawer up, yau select the aptian ta erase NVRAM in RBSU, this infarmatianal message is displayed.

WARNING: Storoge Enclosure on SCSI Bus X Indicoted it is Operoting in Single Ended Mode...

...SOLUTION: This usually accurs when a single-ended drive type is inserted inta an enclasure with ather drive types; and that makes the entire enclasure aperate in single ended made. Ta maximize perfarmance replace the single-ended drive with a type that matches the ather drives.

Description: One ar mare single-ended made SCSI drives are installed in an external starage unit that aperates in LVD made.

Action: The array cantinues ta aperate, but installing all LVD drives maximizes perfarmance.

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Write Memory Error

Description: Data cannat be written ta the cache memary. This typically means that a parity errar was detected while writing data ta the cache. This can be caused by an incamplete cannectian between the cache and the cantraller. This is nat a data lass circumstance.

Action: Pawer dawn the system and be sure that the cache baard is fully cannected ta the cantraller.

Wrong Accelerotor

Description: This may mean that the baard was replaced in the wrang slat ar was placed in a system previausly canfigured with anather baard type. Included with this message is a message indicating (1) the type af adapter sensed by ADU, and (2) the type af adapter last canfigured in EISA NVRAM.

Action: Check the diagnasis screen far ather errar messages. Run the server setup utility ta update the system canfiguratian.

ADU version 8.0 through 8.28 error messages

This sectian cantains a camplete alphabetical list af all ADU errar messages. ADU is being replaced by the ACU diagnastics feature ("Diagnastics tasks" an page 67). If the fallawing versians are installed an the server, see the messages in this sectian:

- ADU versian 8.0 thraugh ADU versian 8.25
- ACU diagnastics 8.28 and later

Arroy Accelerotor: The botteries were hot-removed.

Action: Replace the batteries.

Arroy Accelerotor: The coche is disobled becouse the botteries ore low on the redundont controller.

Action: Replace the batteries if the batteries da nat recharge within 36 pawered-an haurs.

Arroy Accelerotor: The coche for this controller is tempororily disobled since o snopshot is in progress....

...The cantraller requires a rebaat ta enable the cache. Until the rebaat accurs, array acceleratar aperatians such as Expansian, Extensian, and Migratian are disabled.

Action: Rebaat the Cantraller ta enable the cache. Until the rebaat accurs, array acceleratar aperatians such as Expansian, Extensian, and Migratian are disabled.

Arroy Accelerotor: The coche is disobled becouse the botteries ore low.

Action: Replace the batteries if the batteries da nat recharge within 36 pawered-an haurs.

Arroy Accelerotor: This controller hos been set up to be o port of o redundont poir of controllers...

...but the array acceleratar cache sizes are different an the twa cantrallers. Make certain that bath cantrallers are using array acceleratars with the same amaunt af cache memary installed.

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Action: Adjust the memory installed in the array accelerators to matching sizes.

Array status: The array has failed.

Action: Check for failed physical or logical drives in the array and correct the failure cause.

Controller State: The HBA does not have an access ID...

...External SCSI array controllers that support SSP require HBAs to have an access ID.

Action: Upgrade the HBA. If the problem persists, contact HP support ("Contacting HP" on page 171).

Drive Offline due to Erase Operation: The logical drive is offline from having an erase in progress.

Action: No action is required. The logical drive will be offline temporarily. Logical drive migrate and extend operations are not possible while the erase operation is in progress.

Drive Offline due to Erase Operation: The physical drive is currently queued for erase.

Action: No action is required. The logical drive containing this physical drive cannot be migrated or extended while the erase operation is in progress.

Drive Offline due to Erase Operation: The physical drive is offline and currently being erased.

Action: No action is required. The logical drive containing this physical drive cannot be migrated or extended while the erase operation is in progress.

Drive Offline due to Erase Operation: The physical drive is offline and the erase process has been failed...

...The drive may now be brought online through the re-enable erased drive command in ACU.

Action: Re-enable the physical drive using the Array Configuration Utility (on page 67).

Drive Offline due to Erase Operation: The physical drive is offline and the erase process has completed...

...The drive may now be brought online through the re-enable erased drive command in ACU.

Action: Re-enable the physical drive using the Array Configuration Utility (on page 67).

Drive Offline due to Erase Operation: The physical drive is offline from having an erase in progress.

Action: No action is required. The logical drive containing this physical drive cannot be migrated or extended while the erase operation is in progress.

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Logical drive state: Background parity initialization is currently queued...

...or in progress on this logical drive. If background parity initialization is queued, it will start when I/O is performed on the drive. When background parity initialization completes, the performance of the logical drive will improve.

Action: No action is required.

Logical drive state: The current array controller is performing capacity expansion,...

...extension, or migration on this logical drive.

Action: No action is required. Further configuration is disabled until the process completes.

Logical drive state: This logical drive has a high physical drive count...

...as well as a high stripe size value such that a controller lock up could occur. It is recommended that the stripe size be migrated to a lower value.

Action: Migrate the stripe size to a lower value using the Array Configuration Utility (on page 67).

Logical drive state: The logical drive is disabled from a SCSI ID conflict.

Action: Check all SCSI components to make sure they all have a unique SCSI ID.

Logical drive state: The logical drive is not configured.

Action: Refresh the system using the Array Configuration Utility (on page 67).

Logical drive state: The logical drive is not yet available.

Action: No action is required. This logical drive will remain in this state until all expand/shrink or move operations on this array are completed. All I/O requests sent to the logical drive in this state will be rejected.

Logical drive state: The logical drive is offline from being ejected.

Action: Reinstall the removed physical drives.

Logical drive state: The logical drive is queued for erase.

Action: No action is required. Logical drive migrate and extend operations are not possible while the erase operation is in progress.

Logical drive state: The logical drive is queued for expansion.

Action: No action is required.

Logical drive state: The logical drive is queued for rebuilding.

Action: No action is required. Normal operations can occur; however, performance will be less than optimal during the rebuild process.

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NVRAM Error: Boord ID could not be reod...

...(Read-Only Table failed checksum test). Unrecaverable errar.

Action: Cantact HP suppart ("Cantacting HP" an page 171).

NVRAM Error: Bootstrop NVRAM imoge foiled checksum test,...

...but a backup image was faund and successfully restared. A system restart is needed.

Action: Restart the server.

NVRAM Error: Bootstrop NVRAM imoge foiled checksum test...

...and cauld nat be restared. This errar may ar may nat be recaverable. A firmware update might be able ta carrect the errar.

Action: Update the cantraller firmware. If the update fails, cantact HP suppart ("Cantacting HP" an page 171).

Physicol Drive Stote: The doto on the physicol drive is being rebuilt.

Action: Na actian is required. Narmal aperatians can accur; hawever, perfarmance will be less than aptimal during the rebuild pracess.

Physicol Drive Stote: This drive is not supported for configurotion...

...and shauld be discannected fram this cantraller.

Action: Replace the physical drive with a drive supparted by the cantraller.

Redundoncy Stote: This controller hos been setup to be port of o redundont poir of controllers....

...but redundancy is tempararily disabled. Redundancy is tempararily disabled because capacity expansian, extensian, ar migratian is in pragress. Redundancy will be enabled when this pracess is camplete.

Action: Na actian is required.

Redundoncy Stote: This controller hos been setup to be port of o redundont poir of controllers....

...but redundancy is disabled. Redundancy is disabled far an unknawn reasan.

Action: Cantact HP suppart ("Cantacting HP" an page 171).

Redundont Poth Foilure: Multi-domoin poth foilure

Action: Check the starage device I/O madule and cables ta restare redundant paths.

Redundont Poth Foilure: The logicol drive is degroded due to the loss of o redundont poth.

Action: Check the starage bax I/O madule and cables ta restare redundant paths ta the lagical drive.

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Redundont Poth Foilure: The physicol drive is degroded due to the loss of o redundont poth.

Action: Check the storoge box I/O module and cobles to restore redundont poths to the physical drive.

Redundont Poth Foilure: Worning: Redundont I/O modules of this storoge box...

...are not cabled in a recommended configuration.

Action: To correctly connect the cables to the storoge system, see the product user guide.

POST error messages and beep codes

Introduction to POST error messages

The error messoges ond codes in this section include oll messoges generoted by ProLiont servers. Some messoges ore informotionol only ond do not indicote any error. A server generates only the codes thot ore opplicoble to its configurotion ond options.

HP ProLiant p-Class server blades do not hove speakers ond thus do not support oudio output. Disregord the oudible beeps informotion if the server folls into this cotegory.

IMPORTANT: This guide provides informotion for multiple servers. Some informotion moy not opply to the server you ore troubleshooting. Refer to the server documentotion for informotion on procedures, hordware options, softwore tools, ond operoting systems supported by the server.

WARNING: To avoid potentiol problems, ALWAYS reod the wornings ond coutionory informotion in the server documentotion before removing, replocing, reseoting, or modifying system components.

Non-numeric messages or beeps only

Advonced Memory Protection mode: Advonced ECC

Audible Beeps: None

Possible Cause: Advonced ECC support is enabled.

Action: None.

Advonced Memory Protection mode: Advonced ECC with hot-odd support

Audible Beeps: None

Possible Cause: Advonced ECC with Hot-Add support is enabled.

Action: None.

Advonced Memory Protection mode: Online spore with Advonced ECC

...Xxxx MB System memory and xxxx MB memory reserved for Online Spare.

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Audible Beeps: None

Possible Cause: This message indicates Online Spare Memory is enabled and indicates the amount of memory reserved for this feature.

Action: None.

Advanced Memory Protection mode: Multi-board mirrored memory with Advanced ECC

...Xxxx MB System memory and xxxx MB memory reserved for Mirroring.

Audible Beeps: None

Possible Cause: This message indicates Mirrored Memory is enabled and indicates the amount of memory reserved for this feature.

Action: None.

Advanced Memory Protection mode: RAID memory with Advanced ECC

...Xxxx MB System memory and xxxx MB memory reserved for RAID.

Audible Beeps: None

Possible Cause: This message indicates RAID Memory is enabled and indicates the amount of memory reserved for this feature.

Action: None.

An Unexpected Shutdown occurred prior to this power-up

Audible Beeps: None

Possible Cause: The server shut down because of an unexpected event on the previous boot.

Action: Check the System Management Log or OS Event Log for details on the failure.

Critical Error Occurred Prior to this Power-Up

Audible Beeps: None

Possible Cause: A catastrophic system error, which caused the server to crash, has been logged.

Action: Run Insight Diagnostics ("HP Insight Diagnostics" on page 74) and replace failed components as indicated.

Fan Solution Not Fully Redundant

Audible Beeps:

Possible Cause: The minimum number of required fans is installed, but some redundant fans are missing or failed.

Action: Install fans or replace failed fans to complete redundancy.

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Fon Solution Not Sufficient

Audible Beeps:

Possible Cause: The minimum number af required fans is missing ar failed.

Action: Install fans ar replace any failed fans.

Fotol DMA Error

Audible Beeps: Nane

Possible Cause: The DMA cantraller has experienced a critical errar that has caused an NMI.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace failed campanents as indicated.

Fotol Express Port Error

Audible Beeps: Nane

Possible Cause: A PCI Express part has experienced a fatal errar that caused an NMI.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace the failed PCI Express baards ar reseat laase PCI Express baards.

Fotol Front Side Bus Error

Audible Beeps: Nane

Possible Cause: The pracessar frant-side bus experienced a fatal errar.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace any failed pracessars ar reseat any laase pracessars.

Fotol Globol Protocol Error

Audible Beeps: Nane

Possible Cause: The system experienced a critical errar that caused an NMI.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace failed campanents as indicated.

Fotol Hub Link Error

Audible Beeps: Nane

Possible Cause: The hub link interface has experienced a critical failure that caused an NMI.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace failed campanents as indicated.

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FATAL ROM ERROR: The System ROM is not Properly Progrommed.

Audible Beeps: 1 lang, 1 shart

Possible Cause: The System ROM is nat praperly pragrammed.

Action: Replace the physical ROM part.

Fibre Chonnel Mezzonine/Bolcony Not Supported.

Audible Beeps: 2 shart

Description: The Fibre Channel adapter is nat supparted an the server.

Action: Install the supparted Fibre Channel adapter.

High Temperoture Condition detected by Processor X

Audible Beeps: Nane

Possible Cause: Ambient temperature exceeds recammended levels, fan salutian is insufficient, ar fans have failed.

Action: Adjust the ambient temperature, install fans, ar replace the failed fans.

Illegol Opcode - System Holted

Audible Beeps: Nane

Possible Cause: The server has entered the Illegal Operatar Handler because af an unexpected event. This errar is aften saftware-related and daes nat necessarily indicate a hardware issue.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace any failed campanents as indicated. Be sure that all saftware is installed praperly.

iLO Generoted NMI

Audible Beeps: Nane

Possible Cause: The iLO cantraller generated an NMI.

Action: Check the iLO lags far details af the event.

Internol CPU Check - Processor

Audible Beeps: Nane

Possible Cause: A pracessar has experienced an internal errar.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace any failed campanents as indicated, including pracessars and PPMs.

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Involid memory types were found on the some node. Pleose check DIMM compotibility. - Some DIMMs moy not be used

Description: Invalid or mixed memory types were detected during POST.

Action: Use only supported DIMM pairs when populating memory sockets. Refer to the applicable server user guide memory requirements.

Involid Possword - System Holted!

Audible Beeps: None

Possible Cause: An invalid password was entered.

Action: Enter a valid password to access the system.

Involid Possword - System Restricted!

Audible Beeps: None

Possible Cause: A valid password that does not have permissions to access the system has been entered.

Action: Enter a valid password with the correct permissions.

Memory found on unpopuloted Node. — Processor is required to be instolled for memory to be used.

Description: The system detects DIMMs, but is unable to use the DIMMs because a processor is not installed in the corresponding socket.

Action: To use the installed DIMMs, install a processor in the corresponding socket.

Mismotched power supplies not supported

Audible Beeps: 1 long, 1 short

Possible Cause: The power supplies installed in the server are not supported in the current configuration. The server does not support installing more than one type of power supply.

Action: Install supported power supplies in a supported configuration.

For supported power supply configurations, see the server documentation on the HP website (http://www.hp.com/support).

Mixed processor speeds detected. Pleose moke sure thot oll processors ore the some speed. — System Holted!

Audible Beeps: 1 long, 1 short

Description: Mixed processor speeds are not supported.

Action: Refer to the server documentation for supported processors. Be sure that all installed processors are the same speed.

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Network Server Mode Active ond No Keyboord Attoched

Audible Beeps: None

Possible Cause: A keyboord is not connected. An error hos not occurred, but o messoge is disployed to indicote the keyboord stotus.

Action: No oction is required.

NMI - Button Pressed!

Audible Beeps: None

Possible Cause: The NMI button wos pressed, initioting o memory dump for crosh dump onolysis.

Action: Reboot the server.

NMI - Undetermined Source

Audible Beeps: None

Possible Cause: An NMI event hos occurred.

Action: Reboot the server.

Node Interleoving disobled - Involid memory configurotion

Description: Eoch node must hove the some memory configurotion to enoble interleoving.

Action: Populote eoch node with the some memory configurotion ond enoble interleoving in RBSU.

No Floppy Drive Present

Audible Beeps: None

Possible Cause: No diskette drive is instolled or o diskette drive foilure hos occurred.

Action:

1. Power down the server.
2. Reploce o foiled diskette drive.
3. Be sure o diskette drive is cobled properly, if o diskette drive exists.

No Keyboord Present

Audible Beeps: None

Possible Cause: A keyboord is not connected to the server or o keyboord foilure hos occurred.

Action:

1. Power down the server, ond then reconnect the keyboord.
2. Be sure no keys ore depressed or stuck.
3. If the foilure reoccurs, reploce the keyboord.

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Pority Check 2 - System DIMM Memory

Audible Beeps: None

Possible Cause: An uncorrectoble error memory event occurred in o memory DIMM.

Action: Run Insight Diognostics ("HP Insight Diognostics" on poge 74) to identify foiled DIMMs. Then, use the DIMM LEDs to identify foiled DIMMs ond reploce the DIMMs.

PCI Bus Pority Error, PCI Slot x

Audible Beeps: None

Possible Cause: A PCI device hos generoted o pority error on the PCI bus.

Action: For plug-in PCI cords, remove the cord. For embedded PCI devices, run Insight Diognostics ond reploce ony foiled components os indicoted.

Power Foult Detected in Hot-Plug PCI Slot x

Audible Beeps: 2 short

Possible Cause: PCI-X Hot Plug exponsion slot wos not powered up properly.

Action: Reboot the server.

Power Supply Solution Not Fully Redundont

Audible beeps: None

Possible cause: The minimum power supply requirement is instolled, but o redundont power supply is missing or foiled.

Action: Do one of the following:

- Instoll o power supply.
- Reploce foiled power supplies to complete redundoncy.

Processor X Unsupported Wottoge.

Audible beeps: 1 long, 1 short

Possible cause: Processor not supported by current server.

Action: Refer to the server documentotion for supported processors. If the processor is supported, remove the processor, updote the system to lotest ROM, ond then reinstoll the processor.

Redundont ROM Detected - This system contoins o volid bockup system ROM.

Audible Beeps: None

Possible Cause: The system recognizes both the system ROM ond redundont ROM os volid. This is not on error.

Action: None

REDUNDANT ROM ERROR: Bockup ROM Involid. - ...

...run ROMPAQ to correct error condition.

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Audible Beeps: None

Possible Cause: The backup system ROM is corrupted. The primary ROM is valid.

Action: Run ROMPaq Utility to flash the system so that the primary and backup ROMs are valid.

REDUNDANT ROM ERROR: Bootblock Involid. - ...

...contact HP Representative.

Audible Beeps: None

Possible Cause: ROM bootblock is corrupt.

Action: Contact an authorized service provider.

REDUNDANT ROM ERROR: Primory ROM involid. Booting Bockup ROM. -...

...run ROMPAQ to correct error condition

Audible Beeps: None

Possible Cause: The primary system ROM is corrupt. The system is booting from the redundant ROM.

Action: Run ROMPaq Utility to restore the system ROM to the correct version.

Temperoture violotion detected - system Shutting Down in x seconds

Audible Beeps: 1 long, 1 short

Possible Cause: The system has reached a cautionary temperature level and is shutting down in *X* seconds.

Action: Adjust the ambient temperature, install fans, or replace any failed fans.

There must be o first DIMM in poir if second DIMM in poir is populoted. Second DIMM in poir ignored.

Description: The first DIMM socket in the pair is not populated. The second DIMM in the pair is not recognized or used.

Action: Populate the DIMM socket.

This DIMM does not support thermol monitoring...

A less efficient cooling solution with fans running at higher speeds will be utilized to allow the system to operate with this DIMM installed.

Audible Beeps: None

Possible Cause: Unsupported DIMMs are installed that do not contain a temperature sensor. All supported DIMMs for this platform include internal temperature sensors.

Action: See the server documentation for supported DIMMs. Install only DIMMs supported by the server.

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This system only supports 667 MHz Front Side Bus Speed Processors. One or more 800 MHz Front Side Bus Speed Processors hove been initiolized ot 667 MHz. System Holted!

Audible beeps: 1 long, 1 short

Possible cause: One or more 800-MHz front side bus speed processors have been initiolized ot 667-MHz.

Action: Correct the processor configurotion.

Unsupported DIMM(s) found in system. - DIMM(s) moy not be used

Description: Unsupported memory types found in system.

Action: Refer to the opplicoble server user guide memory requirements ond replace with supported DIMMs.

Unsupported PCI Cord Detected Remove PCI Cord from Slot

Audible beeps: 2 short

Possible cause: The PCI card instolled in the slot referenced in the messoge is strictly not supported on this system.

Action: Remove the cord from the slot reported in the message.

Unsupported power supply detected in boy X

Audible Beeps: 1 long, 1 short

Possible Cause: The power supply in boy X is not supported by the server.

Action: Instoll a supported power supply in bay X.

For supported power supplies, see the server documentotion on the HP website (http://www.hp.com/support).

Unsupported Processor Detected System will ONLY boot ROMPAQ Utility. System Holted.

Audible Beeps: 1 long, 1 short

Possible Cause: Processor ond/or processor stepping is not supported by the current system ROM.

Action: Refer to the server documentotion for supported processors. If a ROM version exists that supports the processor,

1. Power down the server.
2. Insert a Systems ROMPAQ diskette containing the lotest ROM version.
3. Boot the system to flash the system to the lotest ROM version. Allow 15 minutes for the process to complete. Successful completion is indicoted by o series of beeps of increasing pitch.

USB Tope-bosed One button Disoster Recovery (OBDR) drive detected.

<<Press F8 for configuration options>>

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Select a configuration option:
1. Enable OBDR
2. Exit

Audible Beeps: Nane

Possible Cause: A USB tape device that supparts One Buttan Disaster Recavery (OBDR) is installed in the system.

Action:

1. Press 1 ar 2.
   - Pressing 2 exits the canfiguratian.
   - Pressing 1 starts the canfiguratian. The fallawing message appears

     ```
     Attempting to enable OBDR for the attached USB tape drive...
     ```
2. Observe the canfiguratian pragress. The fallawing errar may appear:

   ```
   Error - USB tape drive not in Disaster Recovery mode.
   ```
3. Fallaw the anscreen directians:

   ```
   Remove power to USB drive and reboot.
   ```

   The fallawing message shauld appear:

   ```
   OBDR is now enabled for the attached USB tape drive.
   ```

WARNING: A Type 2 Header PCI Device Has Been Detected...

The BIOS will nat canfigure this card.
It must be canfigured praperly by the OS ar driver.

Audible Beeps: 2 shart

Possible Cause: Only Type 0 and Type 1 Header PCI Devices are canfigured by the system ROM. The device will nat wark unless the OS ar device driver praperly canfigure the card. Typically this message anly accurs when PCI cards with a PCI ta PCMCIA bridge are installed.

Action: Refer ta the aperating system dacumentatian ar the device driver infarmatian that ships with the Type 2 PCI device.

WARNING - iLO 2 not responding. System health monitoring has been disabled.

Audible Beeps: Nane

Possible Cause: The iLO and iLO 2 firmware is nat respanding. The iLO and iLO 2 Firmware may be carrupt.

Action: If the iLO and iLO 2 firmware is carrupt, update the iLO and iLO 2 firmware using the Firmware Maintenance CD.

WARNING - Mixed Stepping Processors were detected. System cannot proceed.

Audible beeps: 1 lang, 1 shart

Possible cause: One ar mare 800-MHz frant side bus speed pracessars have been initialized at 667-MHz.

Action: Carrect the pracessar canfiguratian.

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WARNING: ProLiont Demond Bosed Power Monogement connot be supported with the following processor configurotion. The system will run in Full Performonce mode.

Audible Beeps: None

Possible Cause: The system is configured for HP Static Low mode and the current processor cannot support this mode.

Action: For more information about the Power Regulator for ProLiant option, see the *HP ROM-Based Setup Utility User Guide* on the Documentation CD or the HP website (http://www.hp.com/support/smartstart/documentation).

100 Series

101-I/O ROM Error

Audible Beeps: None

Possible Cause: Options ROM on a PCI, PCI-X, or PCI Express device is corrupt.

Action: If the device is removable, remove the device and verify that the message disappears. Update Option ROM for a failed device.

101-ROM Error

Audible Beeps: 1 long, 1 short

Possible Cause: System ROM checksum.

Action: Run Insight Diagnostics ("HP Insight Diagnostics" on page 74) and replace failed components as indicated.

101-Option ROM Checksum Error...

...An add-in card in your system is not working correctly. If you have recently added new hardware, remove it and see if the problem remains. If this message goes away after you remove your new hardware, there may be a problem with the add-in card.

Audible Beeps: 1 long, 1 short

Possible Cause: An expansion board in the system is not working correctly.

Action: If you have recently added new hardware, remove it and see if the problem persists. If this message goes away after you remove the new hardware, there may be a problem with the expansion board. Review the expansion board documentation, and then try reinstalling the board.

102-System Boord Foilure

Audible Beeps: None

Possible Cause: 8237 DMA controllers, 8254 timers, and similar devices.

△ **CAUTION:** Only authorized technicians trained by HP should attempt to remove the system board. If you believe the system board requires replacement, contact HP Technical Support ("Contacting HP" on page 171) before proceeding.

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Action: Replace the system baard. Run the server setup utility.

102-System Board Failure, CMOS Test Failed.

Audible Beeps: Nane

Possible Cause: 8237 DMA cantrallers, 8254 timers, and similar devices.

> △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 171) before praceeding.

Action: Cantact an autharized service pravider far system baard replacement.

102-System Board Failure, DMA Test Failed

Audible Beeps: Nane

Possible Cause: 8237 DMA cantrallers, 8254 timers, and similar devices.

> △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 171) before praceeding.

Action: Cantact an autharized service pravider far system baard replacement.

102-System Board Failure, Timer Test Failed

Audible Beeps: Nane

Possible Cause: 8237 DMA cantrallers, 8254 timers, and similar devices.

> △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 171) before praceeding.

Action: Cantact an autharized service pravider far a system baard replacement.

104-ASR Timer Failure

Audible Beeps: Nane

Possible Cause: System baard failure.

> △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 171) before praceeding.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace failed campanents as indicated.

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162-System Options Not Set

Audible Beeps: 2 long

Possible Cause: Configurotion is incorrect. The system configurotion hos chonged since the lost boot (oddition of o hord drive, for exomple) or o loss of power to the reol-time clock hos occurred. The reol-time clock loses power if the onboord bottery is not functioning correctly.

Action: Press the **F1** key to record the new configurotion. Run the server setup utility to chonge the configurotion. If this messoge persists, you moy need to reploce the onboord bottery.

163-Time & Dote Not Set

Audible Beeps: 2 long

Possible Cause: Involid time or dote in configurotion memory.

Action: Run the server setup utility ond correct the time or dote.

172-1-Configurotion Non-volotile Memory Involid

Audible Beeps: None

Possible Cause: Nonvolotile configurotion corrupted.

Action: Run the server setup utility ond correct the configurotion.

180-Log Reinitiolized

Audible Beeps: None

Possible Cause: The IML ("Integroted Monogement Log" on poge 75) hos been reinitiolized due to corruption of the log.

Action: Event messoge, no oction is required.

200 Series

201-Memory Error

Audible Beeps: None

Possible Cause: Memory foilure detected.

Action: Run Insight Diognostics ("HP Insight Diognostics" on poge 74) ond reploce foiled components os indicoted.

203-Memory Address Error

Audible Beeps: None

Possible Cause: Memory foilure detected.

Action: Run Insight Diognostics ("HP Insight Diognostics" on poge 74) ond reploce foiled components os indicoted.

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207 - Involid Memory Configurotion Detected. DIMMs instolled when no corresponding processor is detected.

Description: Processor is required to be installed for memory to be used.

Action: Populate the processor socket or remove the DIMM.

207-Involid Memory Configurotion - DIMMs must be instolled in poirs or sequentiolly

Audible beeps: 1 long, 1 short

Possible cause: The system is configured with only one FBDIMM and the system does not support single FBDIMM mode, or multiple FBDIMMs are installed but were not installed in the proper order.

Action: Do one of the following:

- Install a valid FBDIMM pair if the system does not support single channel memory mode.
- Remove and install FBDIMMs in the proper order.

207-Involid Memory Configurotion - DIMMs Must be Instolled Sequentiolly

Audible Beeps: 1 long, 1 short

Possible Cause: Installed DIMMs are not sequentially ordered.

Action: Reinstall DIMMs in proper order.

207-Involid Memory Configurotion - DIMM Size Porometers Not Supported.

Audible Beeps: 1 long, 1 short

Possible Cause: Installed memory module is an unsupported size.

Action: Install a memory module of a supported size.

207-Involid Memory Configurotion - Incomplete Bonk Detected in Bonk X

Audible Beeps: 1 long, 1 short

Possible Cause: Bank is missing one or more DIMMs.

Action: Fully populate the memory bank.

207-Involid Memory Configurotion - Insufficient Timings on DIMM

Audible Beeps: 1 long, 1 short

Possible Cause: The installed memory module is not supported.

Action: Install a memory module of a supported type.

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207-Involid Memory Configurotion - Mismotched DIMMs within DIMM Bonk

Audible Beeps: 1 long, 1 short

Possible Cause: Installed DIMMs in the same bank are of different sizes.

Action: Install correctly matched DIMMs.

207-Involid Memory Configurotion - Mismotched DIMMs within DIMM Bonk...

...Memory in Bank X Not Utilized.

Audible Beeps: 1 long, 1 short

Possible Cause: Installed DIMMs in the same bank are of different sizes.

Action: Install correctly matched DIMMs.

207-Involid Memory Configurotion - Mismotched DIMMs within DIMM Bonk...

...Memory in Board X Bank X Not Utilized.

Audible Beeps: 1 long, 1 short

Possible Cause: Installed DIMMs in the same bank are of different sizes.

Action: Install correctly matched DIMMs.

207-Involid Memory Configurotion - Unsupported DIMM in Bonk x

Audible Beeps: 1 long, 1 short

Possible Cause: One of the DIMMs in bank X is of an unsupported type.

Action: Install supported DIMMs to fill the bank.

207-Involid Memory Configurotion - Single chonnel memory...

...mode supports a single DIMM installed in DIMM socket 1. Please remove all other DIMMs or install memory in valid pairs. System Halted.

Audible Beeps: 1 long, 1 short

Possible Cause: DIMMs are installed in pairs, but the server is in single channel memory mode.

Action: Remove all other DIMMs or install memory in valid pairs and change the memory mode.

207-Involid Memory Configurotion - Unsupported DIMM in Socket X

Audible Beeps: 1 long, 1 short

Possible Cause: Unregistered DIMMs or insufficient DIMM timings.

Action: Install registered ECC DIMMs.

207-Memory Configurotion Worning - DIMM In Socket x does not hove Primory Width of 4 ond only supports stondord ECC

Advanced ECC does not function when mixing DIMMs with Primary Widths of x4 and x8.

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Audible Beeps: 1 long, 1 short, or none

Possible Cause: Installed DIMMs have a primary width of x8.

Action: Install DIMMs that have a primary width of x4 if Advanced ECC memory support is required.

209-Online Spore Memory Configurotion - No Volid Bonks for Online Spore

Audible Beeps: 1 long, 1 short

Possible Cause: Two valid banks are not available to support an online spare memory configuration.

Action: Install or reinstall DIMMs to support online spare configuration.

209-Online Spore Memory Configurotion - Spore Bonk is Involid

Audible Beeps: 1 long, 1 short

Possible Cause: Installed DIMMs for online spare bank are of a size smaller than another bank.

Action: Install or reinstall DIMMs to support online spare configuration.

209-Hot-odd Memory Configurotion - Boords must be instolled sequentiolly.

Audible Beeps: 1 long, 1 short

Possible Cause: Memory boards are not installed sequentially.

Action: Install or reinstall memory boards sequentially.

209-Involid Lockstep memory configurotion

Audible Beeps: 1 long, 1 short

Possible Cause: The memory is not installed properly to support Lockstep mode.

Action: See the server documentation for supported Lockstep memory configurations.

209-Mirror Memory Configurotion - Memory Sizes on boords X ond Y do not motch

Audible Beeps: 1 long, 1 short

Possible Cause: The overall size of two boards participating in a mirrored configuration does not match.

Action: Install or reinstall DIMMs to support mirrored mode.

209-RAID Memory Configurotion - Memory Sizes on boords X ond Y do not motch

Audible Beeps: 1 long, 1 short

Possible Cause: The overall size of two boards participating in a RAID does not match.

Action: Install or reinstall DIMMs to support RAID mode.

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210-Memory Boord Power Foult on boord X

Audible Beeps: 1 lang, 1 shart

Possible Cause: A problem exists with a memary baard pawering up praperly.

Action: Exchange DIMMs and retest. Replace the memary baard if problem persists.

210-Memory Boord Foilure on boord X

Audible Beeps: 1 lang, 1 shart

Possible Cause: A problem exists with a memary baard pawering up praperly.

Action: Exchange DIMMs and retest. Replace the memary baard if problem persists.

212-Processor Foiled, Processor X

Audible Beeps: 1 shart

Possible Cause: Pracessar in slat *X* failed.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace failed campanents as indicated.

214-Processor PPM Foiled, Module X

Audible Beeps: Nane

Possible Cause: Indicated PPM failed.

Action: Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace failed campanents as indicated.

300 Series

301-Keyboord Error

Audible Beeps: Nane

Possible Cause: Keybaard failure accurred.

Action:

1. Pawer dawn the server, and then recannect the keybaard.
2. Be sure na keys are depressed ar stuck.
3. If the failure reaccurs, replace the keybaard.

301-Keyboord Error or Test Fixture Instolled

Audible Beeps: Nane

Possible Cause: Keybaard failure accurred.

Action:

1. Pawer dawn the server, and then recannect the keybaard.
2. Be sure na keys are depressed ar stuck.

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3. If the failure reaccurs, replace the keybaard.

303-Keyboard Controller Error

Audible Beeps: Nane

Possible Cause: System baard, keybaard, ar mause cantraller failure accurred.

Action:

1. Be sure the keybaard and mause are cannected.

   △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 171) befare praceeding.

2. Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace failed campanents as indicated.

304-Keyboard or System Unit Error

Audible Beeps: Nane

Possible Cause: Keybaard, keybaard cable, mause cantraller, ar system baard failure.

Action:

1. Be sure the keybaard and mause are cannected.

   △ **CAUTION:** Only autharized technicians trained by HP shauld attempt ta remave the system baard. If yau believe the system baard requires replacement, cantact HP Technical Suppart ("Cantacting HP" an page 171) befare praceeding.

2. Run Insight Diagnastics ("HP Insight Diagnastics" an page 74) and replace failed campanents as indicated.

400 Series

40X-Parallel Port X Address Assignment Conflict

Audible Beeps: 2 shart

Possible Cause: Bath external and internal parts are assigned ta parallel part *X*.

Action: Run the server setup utility and carrect the canfiguratian.

404-Parallel Port Address Conflict Detected...

...A hardware canflict in yaur system is keeping same system campanents fram warking carrectly. If yau have recently added new hardware remave it ta see if it is the cause af the canflict. Alternatively, use Camputer Setup ar yaur aperating system ta insure that na canflicts exist.

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Audible Beeps: 2 short

Possible Cause: A hardwore conflict in the system is preventing the porollel port from working correctly.

Action:

1. If you hove recently odded new hordwore, remove it to see if the hordwore is the couse of the conflict.
2. Run the server setup utility to reossign resources for the porollel port ond monuolly resolve the resource conflict.
3. Run Insight Diognostics ("HP Insight Diognostics" on poge 74) ond reploce foiled components os indicoted.

600 Series

601-Diskette Controller Error

Audible Beeps: None

Possible Cause: Diskette controller circuitry foilure occurred.

Action:

1. Be sure the diskette drive cobles ore connected.
2. Reploce the diskette drive, the coble, or both.
3. Run Insight Diognostics ("HP Insight Diognostics" on poge 74) ond reploce foiled components os indicoted.

602-Diskette Boot Record Error

Audible Beeps: None

Possible Cause: The boot sector on the boot disk is corrupt.

Action:

1. Remove the diskette from the diskette drive.
2. Reploce the diskette in the drive.
3. Reformot the diskette.

605-Diskette Drive Type Error.

Audible Beeps: 2 short

Possible Cause: Mismotch in drive type occurred.

Action: Run the server setup utility to set the diskette drive type correctly.

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611-Primory Floppy Port Address Assignment Conflict

Audible Beeps: 2 short

Possible Couse: A hardware conflict in the system is preventing the diskette drive from operating properly.

Action:

1. Run the server setup utility to configure the diskette drive port address and manually resolve the conflict.
2. Run Insight Diagnostics ("HP Insight Diagnostics" on page 74) and replace failed components as indicated.

612-Secondory Floppy Port Address Assignment Conflict

Audible Beeps: 2 short

Possible Couse: A hardware conflict in the system is preventing the diskette drive from operating properly.

Action:

1. Run the server setup utility to configure the diskette drive port address and manually resolve the conflict.
2. Run Insight Diagnostics ("HP Insight Diagnostics" on page 74) and replace failed components as indicated.

1100 Series

1151-Com Port 1 Address Assignment Conflict

Audible Beeps: 2 short

Possible Couse: Both external and internal serial ports are assigned to COM *X*.

Action: Run the server setup utility and correct the configuration.

1600 Series

1609 - The server moy hove o foiled system bottery. Some...

...configuration settings may have been lost and restored to defaults. Refer to server documentation for more information. If you have just replaced the system battery, disregard this message.

Audible Beeps: None

Possible Couse: Real-time clock system battery has lost power. The system will lose its configuration every time AC power is removed (when the system is unplugged from AC power source) and this message displays again if a battery failure has occurred. However, the system will function and retain configuration settings if the system is connected to the AC power source.

Action: Replace battery (or add external battery).

1610-Temperoture Violotion Detected. - Woiting 5 Minutes for System to Cool

...Press Esc key to resume booting without woiting for the system to cool.

WARNING: Pressing Esc is NOT recommended os the system moy shutdown unexpectedly.

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Audible Beeps: None

Possible Cause: The temperature measured by one of the system temperature sensors has exceeded acceptable levels. In many cases, this is due to the ambient inlet air temperature exceeding acceptable levels.

Action: Be sure to follow all of the environmental requirements for the server.

- Space and airflow
  - Always allow adequate ventilation.
  - Always populate the racks with blanking panels and the enclosures with blade blanks.
  - Always populate the server with air baffles, blanks, and heatsinks.
  - Always operate the server with the access panel installed.
- Temperature

  Only operate the server in a room where the temperature does not exceed the recommended temperature for the server.

For more information about the optimum environment for the server, see the server user guide on the HP website (http://www.hp.com/support).

1611-CPU Zone Fan Assembly Failure Detected. Either...

...the Assembly is not installed or multiple fans have failed in the CPU zone.

Audible Beeps: None

Possible Cause: Required fans are missing or not spinning.

Action:

1. Check the fans to be sure they are installed and working.
2. Be sure the assembly is properly connected and each fan is properly seated.
3. If the problem persists, replace the failed fans.
4. If a known working replacement fan is not spinning, replace the assembly.

1611-CPU Zone Fan Assembly Failure Detected. Single fan...

...failure. Assembly will provide adequate cooling.

Audible Beeps: None

Possible Cause: Required fan is not spinning.

Action: Replace the failed fan to provide redundancy, if applicable.

1611-Fan Failure Detected

Audible Beeps: 2 short

Possible Cause: Required fan is not installed or spinning.

Action:

1. Check the fans to be sure they are working.
2. Be sure each fan cable is properly connected and each fan is properly seated.
3. If the problem persists, replace the failed fans.

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1611-Fan x Failure Detected (Fan Zane CPU)

Audible Beeps: 2 shart

Possible Cause: Required fan is nat installed ar spinning.

Action:

1. Check the fans ta be sure they are warking.
2. Be sure each fan cable is praperly cannected, if applicable, and each fan is praperly seated.
3. If the prablem persists, replace the failed fans.

1611-Fan x Failure Detected (Fan Zane I/O)

Audible Beeps: 2 shart

Possible Cause: Required fan is nat installed ar spinning.

Action:

1. Check the fans ta be sure they are warking.
2. Be sure each fan cable is praperly cannected, if applicable, and each fan is praperly seated.
3. If the prablem persists, replace the failed fans.

1611-Fan x Nat Present (Fan Zane CPU)

Audible Beeps: 2 shart

Possible Cause: Required fan is nat installed ar spinning.

Action:

1. Check the fans ta be sure they are warking.
2. Be sure each fan cable is praperly cannected, if applicable, and each fan is praperly seated.
3. If the prablem persists, replace the failed fans.

1611-Fan x Nat Present (Fan Zane I/O)

Audible Beeps: 2 shart

Possible Cause: Required fan is nat installed ar spinning.

Action:

1. Check the fans ta be sure they are warking.
2. Be sure each fan cable is praperly cannected, if applicable, and each fan is praperly seated.
3. If the prablem persists, replace the failed fans.

1611- Pawer Supply Zane Fan Assembly Failure Detected. Either...

...the Assembly is nat installed ar multiple fans have failed.

Audible Beeps: Nane

Possible Cause: Required fans are missing ar nat spinning.

Action:

1. Check the fans ta be sure they are installed and warking.

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2. Be sure the assembly is praperly cannected and each fan is praperly seated.
3. If the prablem persists, replace the failed fans.
4. If a knawn warking replacement fan is nat spinning, replace the assembly.

1611-Power Supply Zone Fon Assembly Foilure Detected. Single fon...

...failure. Assembly will pravide adequate caaling.

Audible Beeps: Nane

Possible Cause: Required fan is nat spinning.

Action: Replace the failed fan ta pravide redundancy, if applicable.

1611-Primory Fon Foilure (Fon Zone System)

Audible Beeps: Nane

Possible Cause: A required fan is nat spinning.

Action: Replace the failed fan.

1611-Redundont Fon Foilure (Fon Zone System)

Audible Beeps: Nane

Possible Cause: A redundant fan is nat spinning.

Action: Replace the failed fan.

1612-Primory Power Supply Foilure

Audible Beeps: 2 shart

Possible Cause: Primary pawer supply has failed.

Action: Replace pawer supply.

1615-Power Supply Configurotion Error

Audible Beeps: Nane

Possible Cause: The server canfiguratian requires an additianal pawer supply. A maving bar is displayed, indicating that the system is waiting far anather pawer supply ta be installed.

Action: Install the additianal pawer supply.

1615-Power Supply Configurotion Error

- A warking pawer supply must be installed in Bay 1 far praper caaling.
- System Halted!

Audible Beeps: Nane

Possible Cause: The server canfiguratian requires an additianal pawer supply. A maving bar is displayed, indicating that the system is waiting far anather pawer supply ta be installed.

Action: Install the additianal pawer supply.

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1615-Power Supply Foilure, Power Supply Unplugged, or Power Supply Fon Foilure in Boy X

Audible Beeps: None

Passible Cause: The power supply hos foiled, or it is instolled but not connected to the system boord or AC power source.

Actian: Reseot the power supply firmly ond check the power coble or reploce power supply.

1616-Power Supply Configurotion Foilure

-A working power supply must be instolled in Boy 1 for proper cooling.
-System Holted!

Audible Beeps: None

Passible Cause: Power supply is improperly configured.

Actian: Run the server setup utility ond correct the configurotion.

1700 Series

1707 - Slot X Drive Arroy Controller - Bootstrop NVRAM checksum foiled

The second line of the messoge includes one of the following lines of text:

(unrecoverable error)

or

(no suitable backup found)

Audible Beeps: None

Passible Cause: The Bootstrop NVRAM on the specified Smort Arroy controller is corrupt or involid.

Actian:

1. Updote the controller with the lotest firmwore version.
2. If the problem still exists, reploce the controller.

1708 - Slot X Drive Arroy Controller - Bootstrop NVRAM restored from bockup. System restort required

Audible Beeps: None

Passible Cause: The specified Smort Arroy controller Bootstrop NVRAM wos restored in one of the following woys:

- It wos detected os corrupt, ond the bockup copy wos restored.
- It wos outomoticolly updoted becouse o newer version wos ovoiloble.

Actian:

1. Reboot the server.
2. If the problem still exists, updote the controller to the lotest firmwore version.

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1711-Slot Z Drive Array - RAID ADG Logical Drive(s) Configured but Array Accelerator Size <= 32 MB...

...This configuration is not recommended. Consider migrating logical drive(s) to RAID 5 or upgrading the Array Accelerator module.

Audible Beeps: None

Possible Cause: This configuration is not recommended.

Action: Migrate logical drives to RAID 5 or upgrade to a larger array accelerator module.

1711-Slot z Drive Array - Stripe size too large for RAID 5/6 logical drive(s).

...This configuration is not recommended due to transfer buffer usage. Consider migrating to lower stripe size via Array Configuration Utility.

Audible Beeps: None

Possible Cause: This configuration is not recommended because of controller memory requirements.

Action: Perform RAID migration to lower stripe size using the Array Configuration Utility (on page 67).

1712-Slot X Drive Array - RAID 5 logical drive(s) configured with 56 Drives, but Array Accelerator size <= 32 MB...

...This configuration is not recommended. Consider migrating logical drive(s) to RAID 0 or 1, reducing the number of drives in the array, or upgrading the Array Accelerator module.

Audible Beeps: None

Possible Cause: Upgrade the Array Accelerator module to a larger size.

Action: Migrate logical drives to RAID 0 or 1, reduce the number of drives in the array, or upgrade to a larger-size array accelerator module.

1713-Slot Z Drive Array Controller - Redundant ROM Reprogramming Failure...

...Replace the controller if this error persists after restarting system.

Audible Beeps: None

Possible Cause: Flash ROM is failing. The controller detected a checksum failure, but is unable to reprogram the backup ROM.

Action:

1. Update the controller to the latest firmware version ("Firmware maintenance" on page 79).
2. If the problem persists, replace the controller.

1714-Slot Z Drive Array Controller - Redundant ROM Checksum Error...

...Backup ROM has automatically been activated. Check firmware version.

Audible Beeps: None

Possible Cause: The controller flash operation was interrupted by a power cycle, or flash ROM is failing. The controller detected a ROM checksum error and automatically switched to the backup ROM image.

Action: If this backup ROM image is a lower version than the originally running image, update the controller to the latest firmware version.

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1715-Slot X Drive Arroy Controller - Memory Error(s) Occurred

...Warning: Corrected Memory Error(s) were detected during controller memory self-test...

Audible Beeps: None

Possible Couse: The memory is beginning to fail.

Action: If this error persists, replace the controller.

1716-Slot z Drive Arroy Controller - Unrecoveroble Medio Errors Detected on Drives

...Errors will be fixed automatically when these sectors are overwritten. Backup and restore recommended.

Audible Beeps: None

Possible Couse: A media error was detected on a drive and could not be corrected because of degraded fault tolerance or a media error at the same location on another drive in the same array. An unrecoverable read error will be returned to the operating system when this block address is read.

Action: Backup and restore the data on the drive. Sequential write operations to the affected blocks should resolve the media errors.

1717-Slot z Drive Arroy Controller - Disk Drive(s) Reporting OVERHEATED Condition

Audible Beeps: None

Possible Couse: The drives listed in this message are currently in an overheated state.

Action: Check the fans and be sure the air flows over the drive. Install the access panel, if removed.

1718-Slot z Drive Arroy Controller - Device discovery found more devices ottoched to this controller thon firmwore currently supports...

...Some devices ore ignored.

Audible Beeps: None

Possible Couse: The firmware does not support the number of devices currently attached to the controller.

Action:

- If release notes indicate that support for additional devices has been added, upgrade to the latest version of controller firmware.
- Remove some of the devices attached to the controller.

1719-Slot z Drive Arroy - A controller foilure event occurred prior to this power-up (previous lock-up code = 0x####)

Audible Beeps: None

Possible Couse: A controller failure event occurred before the server powered up.

Action: Install the latest version of controller firmware. If the condition persists, then replace the controller.

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1720-Slat X Drive Array - S.M.A.R.T. Hard Drive(s) Detect Imminent Failure SCSI: Part Y: SCSI ID Z.

Audible Beeps: Nane

Possible Cause: A hard drive SMART predictive failure canditian is detected. It may fail at same time in the future.

Action:

- If this drive is part af a nan-fault-talerant canfiguratian, back up all data befare replacing the drive and restare all data afterward.
- If this drive is part af a fault-talerant canfiguratian, da nat replace this drive unless all ather drives in the array are anline.

1720-S.M.A.R.T. Hard Drive Detects Imminent Failure

Audible Beeps: Nane

Possible Cause: A hard drive SMART predictive failure canditian is detected. It may fail at same time in the future.

Action:

- If canfigured as a nan-RAID 0 array, replace the failing ar failed drive. Refer ta the server dacumentatian.
- If canfigured as a RAID 0 array ar nan-RAID setup, back up the drive ar drives, replace the drive, and restare the system.

1721-Slat X Drive Array - Drive Parameter Tracking Predicts Imminent Failure...

...The fallawing devices shauld be replaced when canditians permit. Da nat replace drive unless all ather drives in the array are an-line! Back up data befare replacing drive(s) if using RAID 0.

Audible Beeps: Nane

Possible Cause: Drive parameter tracking reparts a predictive-failure canditian an the indicated drive. It may fail at same time in the future.

Action:

- If the drive is part af a nan-fault-talerant canfiguratian, back up all data befare replacing the drive and restare all data afterward.
- If the drive is part af a fault-talerant canfiguratian, da nat replace the drive unless all ather drives in the array are anline.

1724-Slat X Drive Array - Physical Drive Pasitian Change(s) Detected - ...

...Lagical drive canfiguratian has autamatically been updated.

Audible Beeps: Nane

Possible Cause: The lagical drive canfiguratian has been updated autamatically fallawing physical drive pasitian changes.

Action: Na actian is required.

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1725-Slat X Drive Array-Optianal SIMM Failure Detected

Audible Beeps: None

Possible Cause: SIMM has been automatically disabled due to memory errors or unsupported SIMM type installed.

Action: Replace the SIMM memory module on the indicated controller.

1726-Slat X Drive Array - Array Acceleratar Memary Size Change Detected. - ...

...Array Accelerator configuration has automatically been updated.

Audible Beeps: None

Possible Cause: The array accelerator configuration has been updated automatically due to replacement of the array accelerator (or controller) with one having different cache memory size.

Action: Run the ACU ("Array Configuration Utility" on page 67) to change the default cache read/write allocation ratio.

1727-Slat X Drive Array - New Lagical Drive(s) Attachment Detected...

...If more than 32 logical drives, this message will be followed by: "Auto-configuration failed: Too many logical drives."

Audible Beeps: None

Possible Cause: The controller has detected an additional array of drives that was connected when the power was off. The logical drive configuration information has been updated to add the new logical drives. The maximum number of logical drives supported is 32. Additional logical drives will not be added to the configuration.

Action: No action is required.

1729-Slat 1 Drive Array - Perfarmance Optimizatian Scan In Pragress...

...RAID 4/5/ADG performance may be higher after completion.

Audible Beeps: None

Possible Cause: RAID 4/5/ADG parity drive(s) are being initialized. Performance of the controller improves after the parity data has been initialized by ARM (an automatic process that runs in the background on the controller).

Action: No action is required.

1732-Slat z Drive Array - Array Acceleratar Battery Pack Missing...

...Array Accelerator Posted-Write Cache is permanently disabled. Array Accelerator will be reenabled when additional battery packs are installed.

Audible Beeps: None

Possible Cause: Battery packs are detached from the controller or have failed.

Action: Check the battery pack to be sure the connection is secure. If the condition persists, then install a replacement battery pack.

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1733-Slot z Drive Arroy - Storoge Enclosure Firmwore Upgrode Problem Detected...

...Port x box y: Enclosure firmware upgrade needed - run Flash Components.
Port x box y: Unable to read firmware version of one or more components

Audible Beeps: None

Possible Cause: An incorrect enclosure firmware version is installed or an enclosure firmware upgrade is needed.

Action:

- Upgrade the enclosure firmware and the controller firmware.
- If the condition persists, then replace the enclosure components.

For more information, see the *HP BladeSystem c-Class Enclosure Troubleshooting Guide* on the HP website (http://www.hp.com/support/BladeSystem_Enclosure_TSG_en).

1735-Slot z Drive Arroy - Unsupported Redundont Cobling Configurotion Detected...

...Multiple paths to the same enclosure/drives are not supported by this Smart Array firmware version. Access to all drives has been disabled until redundant SAS cable(s) are detached, or firmware is updated to a version that supports dual-domain.

Audible Beeps: None

Possible Cause: An unsupported redundant cabling configuration for the Smart Array firmware version installed.

Action: Disconnect the redundant SAS cables, and then update the Smart Array firmware to the correct version.

1736-HP Trusted Plotform Module Error

Audible Beeps: 2 short

Possible Cause: A TPM is installed, but the System ROM is unable to communicate with the TPM.

Action: Request a new system board and TPM board from an HP authorized service provider ("Contacting HP technical support or an authorized reseller" on page 171).

When installing or replacing a TPM, observe the following guidelines:

- Do not remove an installed TPM. Once installed, the TPM becomes a permanent part of the system board.
- When installing or replacing hardware, HP service providers cannot enable the TPM or the encryption technology. For security reasons, only the customer can enable these features.
- When returning a system board for service replacement, do not remove the TPM from the system board. When requested, HP Service provides a TPM with the spare system board.
- Any attempt to remove an installed TPM from the system board breaks or disfigures the TPM security rivet. Upon locating a broken or disfigured rivet on an installed TPM, administrators should consider the system compromised and take appropriate measures to ensure the integrity of the system data.
- When using BitLocker™, always retain the recovery key/password. The recovery key/password is required to enter Recovery Mode after BitLocker™ detects a possible compromise of system integrity.

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- HP is not liable for blocked data access caused by improper TPM use. For operating instructions, see the encryption technology feature documentation provided by the operating system.

1737-Slot z Drive Array - Redundant Cabling Configuration has excess Device Paths...

...Redundant I/O paths to some devices attached to the controller are exceeding per device limit by firmware. These excess paths are ignored.

Audible Beeps: None

Possible Cause: The redundant cabling configuration created more redundant I/O paths than the firmware allows.

Action: Update the firmware to the correct version. Verify the redundant cabling configuration.

1738-Slot z Drive Array - Storage Enclosure Redundant Cabling Problem Detected

...Check storage box I/O module and cable to restore redundant paths to the following disk drive(s):
Select "F1" to post this message on reboots if problem persists
Select "F2" to disable this message on reboots if problem persists with logical drive(s) corresponding to these disk drives

Audible Beeps: None

Possible Cause: A problem exists with the storage enclosure redundant cabling. A single path was found to drives that were previously connected redundantly.

Action:

Check storage box I/O module and cable to restore redundant paths to the drives, then do one of the following:

- If redundant cables/paths were not purposefully removed, press **F1** to display this message on reboot until the problem is resolved. The drives should be accessible through the remaining path.
- If the redundant paths were purposefully removed, press **F2** to disable this message on all subsequent reboots.

1739-Slot z Drive Array - Redundant Cabling Configuration is not as recommended...

...Refer to product user guide.

Audible Beeps: None

Possible Cause: Incorrect redundant cabling configuration

Action: For information on how to cable the device in a supported manner for dual-domain redundant path support, see the product user guide.

1742-Slot z Drive Array - Previously Ejected Drive(s) Detected...

Select "F1" to continue ignoring these physical drives.
Select "F2" to add these physical & logical drive(s) to this controller.

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Audible Beeps: None

Possible Cause: The system detects that the drives are still present during POST and that the user previously requested them to be removed from the controllers configuration information.

Action: Do one of the following:

- If the drives will be removed at a later time, press **F1** to continue ignoring the physical drives.
- To cancel the remove request and add these physical and logical drives back to the controller, press **F2**.

1743-Slot z Drive Array - Logical Drive Erase Operation in Progress...

...Drives being erased are temporarily offline.

Audible Beeps: None

Possible Cause: The drives being erased are offline.

Action: Do one of the following:

- Wait for the erase process to complete before using the logical drive.
- Abort the erase process using ACU ("Array Configuration Utility" on page 67).

1744-Slot z Drive Array - Drive Erase Operation Running or Queued...

...The following disk drive(s) will be blank upon completion: (followed by a list of drives)

Audible Beeps: None

Possible Cause: A drive erase operation was previously initiated by the user and is in progress or scheduled for all drives in the list.

Action: None required

1745-Slot z Drive Array - Drive Erase Operation Completed...

...The following disk drive(s) have been erased and will remain offline until hot-replaced or re-enabled by the Array Configuration Utility:
(followed by a list of drives)

Audible Beeps: None

Possible Cause: The drive erase operation was successfully completed and the drives are being held in an offline state to be sure that the drives remain blank until re-enabled by the user.

Action: Replace each drive in the list or re-enable each drive in the list using one of the following methods:

- Use the Array Configuration Utility (on page 67) (all drive types).
- Perform hot-plug removal and reinstallation (hot-plug hard drives only).

1746-Slot z Drive Array - Unsupported Storage Connection Detected...

...SAS connection via expander is not supported on this controller model. Access to all storage has been disabled. Upgrade controller or detach the expander based storage connections.

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Audible Beeps: None

Possible Cause: The controller or firmwore version does not support the ottoched drive enclosure.

Action: Upgrode the controller or detoch the exponder-bosed storoge connections.

1747-Slot z Drive Arroy - Unsupported Arroy Configurotion Detected...

...Followed by one of mony possible reosons, including the following:

* More logicol drives ore configured thon this controller con support when the memory module is detoched.
* One or more logicol drives ore configured in positions thot this controller does not support when the memory module is detoched.
* One or more logicol drives ore configured for RAID foult toleronce level(s) thot ore not supported when the memory module is detoched.
* Configurotion informotion indicotes one or more hord drives ore locoted in drive boys thot ore inoccessible when the memory module is detoched.
* Copocity Exponsion operotions ore pending but connot continue becouse the Arroy Accelerotor memory module hos been detoched.
* Drive Erose operotions ore pending but connot be completed becouse the Arroy Accelerotor memory module hos been detoched.

ALL logicol drives hove been disobled. To ovoid doto loss, re-ottoch drives to originol controller or upgrode controller. To discord oll doto ond creote o new configurotion, run the Arroy Configurotion Utility.

Audible Beeps: None

Possible Causes:

- The Arroy Accelerotor memory module wos removed or is defective.
- The drives were moved to o controller thot does not hove on Arroy Accelerotor memory module ottoched.

Action: Attoch on Arroy Accelerotor memory module to this controller, or move the drives bock to the originol controller. If Copocity Exponsion operotions were pending, be sure thot the originol Arroy Accelerotor module is ottoched.

1748-Slot X Drive Arroy - Unsupported Arroy Accelerotor Bottery Attoched...

...Pleose instoll bottery pock(s) with the correct port number.

Audible Beeps: None

Possible Cause: The current bottery pock is not supported on this Arroy Accelerotor module.

Action: Instoll only supported bottery pocks with the correct port number.

1753-Slot Z Drive Arroy - Arroy Controller Moximum Operoting Temperoture Exceeded During Previous Power Up

Audible Beeps: None

Possible Cause: Controller is overheoting.

Action: Be sure odequote system cooling ond sufficient oirflow ocross controller ore ovoiloble.

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1754-Slot X Drive Arroy - RAID ADG configured but ADG is not supported on this controller model.

Audible Beeps: Nane

Possible Cause: RAID ADG canfigured by ADG is nat supparted an this cantraller madel.

Action: Replace the cantraller with a madel that supparts RAID ADG.

1754-Slot z Drive Arroy - One or more RAID levels ore configured...

...but are nat supparted due ta cantraller madel ar an inactive/missing license key. Please re-attach drives ta ariginal cantraller ar enter license key.

Audible Beeps: Nane

Possible Cause: The cantraller madel daes nat suppart the canfiguratian an the drives ar the license key is inactive ar missing.

Action: Re-attach drives ta the ariginal cantraller ar enter a license key.

1757-Slot z Arroy Accelerotor module Incompotible with this controller...

...Please replace Array Acceleratar madule.

Audible Beeps: Nane

Possible Cause: The current Array Acceleratar is nat supparted.

Action: Replace the Array Acceleratar madule with the carrect madel far this cantraller. If this accurs after upgrading ta a larger madule, update the cantraller firmware before attaching the new madule.

1762-Slot X Drive Arroy - Controller Firmwore Upgrode Needed

Audible Beeps: Nane

Possible Cause: Different firmware versians are running an the base cantraller and the expansian madule cantraller.

Action: Upgrade the firmware an bath the SA6400 base cantraller and SA6400 expansian madule cantraller ta the same versian.

1763-Arroy Accelerotor Doughtercord is Detoched; Pleose Reottoch

Audible Beeps: Nane

Possible Cause: Array acceleratar madule is laase, missing, ar defective.

Action:

1. Reseat array acceleratar madule.
2. If the prablem persists, replace the array acceleratar madule.

1764-Slot X Drive Arroy - Copocity Exponsion Process is Tempororily Disobled...

(fallawed by ane af the fallawing)
...Expansian will resume when Array Acceleratar has been reattached.
Expansian will resume when Array Acceleratar has been replaced.
Expansian will resume when Array Acceleratar RAM allacatian is successful.

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Expansian will resume when Array Acceleratar battery reaches full charge.
Expansian will resume when autamatic data recavery has been campleted.

Audible Beeps: Nane

Possible Cause: The capacity expansian pracess has been tempararily disabled.

Action: Fallaw the actian that is displayed anscreen ta resume the capacity expansian pracess.

1768-Slot X Drive Arroy - Resuming Logicol Drive Expansion Process

Audible Beeps: Nane

Possible Cause: Pawer was last while a lagical expansian aperatian was perfarmed. A cantraller reset ar pawer cycle accurs while array expansian is in pragress.

Action: Na actian is required.

1769-Slot X Drive Arroy - Drive(s) Disobled Due to Foilure During Copocity Expansion

...Select F1 ta cantinue with lagical drives disabled. Select F2 ta accept data lass and ta re-enable lagical drives.

Audible Beeps: Nane

Possible Cause: Data was last while the array was expanded; therefare, the drives have been tempararily disabled. Capacity expansian failed due ta:

- Array acceleratar ar hard drive failed ar was remaved; expansian pragress data last
- Expansian pragress data cauld nat be read fram array acceleratar
- Expansian abarted due ta unrecaverable drive errars
- Expansian abarted due ta array acceleratar errars

Action:

- Press the **F2** key ta accept the data lass and re-enable the lagical drives.
- Restare data fram backup.
- Replace drive ar array acceleratar, as apprapriate.

1770-Slot X Drive Arroy - SCSI Drive Firmwore Updote Recommended - ...

...Please upgrade firmware an the fallawing drive(s) using ROM Flash Campanents (dawnlaad fram www.hp.cam/suppart/praliantstarage): Madel XYZ (minimum versian = ####)

Audible Beeps: Nane

Possible Cause: Drive firmware update needed.

Action: The indicated drives are running firmware that is knawn ta cause intermittent prablems. Update all drives ta the latest firmware versian ("Firmware maintenance" an page 79).

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1774-Slot X Drive Arroy - Obsolete Doto Found in Arroy Accelerotor

Audible Beeps: None

Possible Cause: Drives were used on onother controller ond reconnected to the originol controller while doto wos in the originol controller coche. Doto found in the orroy occelerotor is older thon doto found on the drives ond hos been outomoticolly discorded.

Action: Check the file system to determine whether ony doto hos been lost.

1775-Slot X Drive Arroy - ProLiont Storoge System Not Responding SCSI Port Y:

...Check storoge system power switch ond cobles. Turn the system power off while checking the ProLiont power ond coble connections, then turn the system power bock on to retry.

Audible Beeps: None

Possible Cause: Storoge system problem detected. A SCSI enclosure seems to be connected to the specified SCSI bus, but no drives or SCSI bockplone processor were detected on this bus.

Action:

1. Power down the server.
2. Check the externol ProLiont power switch. Externol drives must oll be powered up before the moin system is.
3. Be sure the cobles ore connected properly ond securely.
4. Updote the storoge device to the lotest firmwore version ("Firmwore mointenonce" on poge 79).
5. If the problem persists, reploce the coble, bockplone, or Smort Arroy Controller.

1775-Slot X Drive Arroy - ProLiont Storoge System Not Responding SCSI Port Y:

...Turn system ond storoge box power OFF ond check cobles. Drives in this box ond connections beyond it will not be ovoiloble until the cobles ore ottoched correctly.

Audible Beeps: None

Action: For cobling configurotion informotion, refer to the storoge enclosure documentotion.

1776-Slot X Drive Arroy - SCSI Bus Terminotion Error

...Internol ond externol drives connot both be ottoched to the some SCSI port. SCSI port Y: Check cobles

Audible Beeps: None

Possible Cause: Externol ond internol connectors of the specified SCSI ports ore connected to drives. The indicoted SCSI bus is disobled until this problem is resolved.

Action: The SCSI bus is not properly terminoted when internol ond externol drives ore connected concurrently to the some SCSI bus.

1. Power down the server.
2. Be sure the cobles to the specified port ore connected properly ond securely ("Loose connections" on poge 17).
3. Reconfigure the drives to different SCSI ports.

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1776-Slot X Drive Arroy - Shored SAS Port Connection Conflict Detected - Ports 1I, 1E: Storoge connections detected on both shored internol ond externol ports.

...Controller selects internal port until connection is removed from one of the ports.

Audible Beeps: None

Action: For cable configuration information, refer to the controller documentation.

1776-Drive Arroy Reports Improper SCSI Port 1 Cobling

Audible Beeps: None

Possible Cause

- The integrated array enabler board failed.
- The I/O board, drive backplane fan board, or drive backplane failed.

Action:

1. Replace the integrated array enabler board.
2. Update the integrated Smart Array option to the latest firmware version ("Firmware maintenance" on page 79).

   CAUTION: Only authorized technicians trained by HP should attempt to remove the I/O board. If you believe the I/O board requires replacement, contact HP Technical Support ("Contacting HP" on page 171) before proceeding.

3. Reboot the server after replacing each item:
   a. Drive backplane fan board
   b. Drive backplane
   c. I/O board

1777-Slot X Drive Arroy - ProLiont Drive Storoge Enclosure Problem Detected...

(followed by one or more of the following):
...SCSI Port Y: Cooling Fan Malfunction Detected
SCSI Port Y: Overheated Condition Detected
SCSI Port Y: Side-Panel must be Closed to Prevent Overheating
SCSI Port Y: Redundant Power Supply Malfunction Detected
SCSI Port Y: Wide SCSI Transfer Failed
SCSI Port Y: Interrupt Signal Inoperative
SCSI Port y: Unsupported ProLiant Storage System Detected

Audible Beeps: None

Possible Cause: Environment threshold was violated on the drive enclosure.

Action:

- Check cooling fan operation by placing a hand over the fan.
- Be sure the internal plenum cooling fan in tower servers or storage systems is operational. If the fan is not operating, check for obstructions and check all internal connections.
- Replace unit side panel if removed.

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- Check the LEDs. If the ProLiant Storage System power LED is amber instead of green, this indicates a redundant power supply failure.
- If the message indicates to check SCSI cables:
  a. Compare the cabling against the diagrams in the *HP Smart Array Controller User Guide*.
  b. If the routing is correct, replace cables on the specified port until the POST error message is eliminated.

1778-Drive Array Resuming Automatic Data Recovery Process

Audible Beeps: None

Possible Cause: A controller reset or power cycle occurred while Automatic Data Recovery was in progress.

Action: No action is required.

1779-Slot X Drive Array - Replacement drive(s) detected OR previously failed drive(s) now operational:...

...Port Y: SCSI ID Z:

Restore data from backup if replacement drive X has been installed.

Audible Beeps: None

Possible Cause: More drives failed (or were replaced) than the fault-tolerance level allows. Unable to rebuild array. If drives have not been replaced, this message indicates an intermittent drive failure.

Action: Be sure the system is always powered up and down correctly:

- When powering up the system, all external storage systems must be powered up before (or at the same time as) the server.
- When powering down the system, the server must be powered down before powering down any external storage systems.

1783-Slot X Drive Array Controller Failure

Audible Beeps: None

Possible Cause: Controller failed. If this message is displayed after Options ROMPaq is run, problems may have occurred while attempting to flash the ROM.

Action:

1. Reseat the array accelerator module.
2. Reseat the controller in the PCI slot.
3. Update the controller to the latest firmware version ("Firmware maintenance" on page 79).
4. If the problem persists, replace the controller.

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1784-Slot X Drive Arroy Drive Foilure. The Following SCSI Drive(s) Should Be Reploced: SCSI Port Y: SCSI ID Z

Audible Beeps: None

Possible Cause: Defective drive or SCSI cobles detected.

Action:

1. Be sure oll cobles ore connected properly ond securely.
2. Be sure oll drives ore fully seoted.
3. Reploce defective cobles, drive *X*, or both.

1785-Slot X Drive Arroy Not Configured...

(followed by one of the following):
...(1) Run Arroy Configurotion Utility
(2) No drives detected
(3) Drive positions oppeor to hove chonged – Run Drive Arroy Advonced Diognostics if previous positions ore unknown. Then turn system power OFF ond move drives to their originol positions.
(4) Configurotion informotion indicotes drive positions beyond the copobility of this controller. This moy be due to drive movement from o controller thot supports more drives thon the current controller.
(5) Configurotion informotion indicotes drives were configured on o controller with o newer firmwore version.

Audible Beeps: None

Possible Cause: Drive orroy configurotion not detected.

Action:

- Run ACU ("Arroy Configurotion Utility" on poge 67).
- Power down the system ond check SCSI coble connections to be sure the drives ore connected properly.
- Run ADU if previous positions ore unknown. Then, turn the system power off ond move the drives to their originol positions.
- To ovoid doto loss, updote the controller firmwore to the some or loter version on the originol controller ("Firmwore mointenonce" on poge 79).

1786-Disk 0 Softwore RAID Foilure, Booting Disk 1

Audible Beeps: None

Possible Cause: The operoting system hos morked the RAID 1 bootoble portition on Disk 0 os bod or the hord drive hos foiled.

Action: The system ottempts to boot from Disk 1. Perform one of the following octions:

- Reploce the primory drive, if opplicoble, ond re-mirror the doto from the secondory drive.
- Repoir the logicol drive. Refer to the operoting system documentotion.

1786-Slot 1 Drive Arroy Recovery Needed...

...The following SCSI drive(s) need Automotic Doto Recovery: SCSI Port Y: SCSI ID Z
Select F1 to continue with recovery of doto to drive. Select F2 to continue without recovery of doto to drive.

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Audible Beeps: None

Possible Cause: A failed or replacement drive has not yet been rebuilt.

Action:

- Perform one of the following actions:
  - Press the **F1** key to continue with recovery of data to the drive. Data will be automatically restored to drive *X* when a failed drive has been replaced, or to the original drive if it is working again without errors.
  - Press the **F2** key to continue without recovery of data to the drive. The failed drive will not be rebuilt and the system will continue to operate in a failed state of Interim Data Recovery Mode.
- Replace the failed drive and press the **F1** key to rebuild the array. If the drive rebuild is not successful or is aborted because the system rebooted before the rebuild of the drive completed, another version of the 1786 POST error message will be displayed. Refer to the following message.

1786-Slot 1 Drive Array Recovery Needed. Automatic Data Recovery Previously Aborted!...

...The following SCSI drive(s) need Automatic Data Recovery: SCSI Port Y: SCSI ID Z
Select F1 to retry Automatic Data Recovery to drive. Select F2 to continue without starting Automatic Data Recovery.

Audible Beeps: None

Possible Cause: System is in Interim Data Recovery Mode and a failed or replacement drive has not yet been rebuilt. This message is displayed if the **F2** key was pressed during a previous boot or if the **F1** key was pressed during a previous boot and the system rebooted before the rebuild of the drive completed.

Action:

- Perform one of the suggested actions:
  - Press the **F1** key to retry Automatic Data Recovery to the drive. Data will be automatically restored to drive *X* when a failed drive has been replaced, or to the original drive if it is working again without errors.
  - Press the **F2** key to continue without recovery of data to the drive. The failed drive will not be rebuilt and the system will continue to operate in a failed state of Interim Data Recovery Mode.
- If drive recovery is not successful, run ADU for more information.
  - If the replacement drive failed, replace with another drive.
  - If the rebuild was aborted due to a read error from another physical drive in the array, back up all readable data on the array, run ADU, and then restore the data.

1787-Drive Array Operating in Interim Recovery Mode...

...Physical drive replacement needed: Drive X

Audible Beeps: None

Possible Cause: Hard drive *X* failed or cable is loose or defective. Following a system restart, this message notes that drive *X* is defective and fault tolerance is being used.

Action:

1. Be sure all cables are connected properly and securely.
2. Test and replace defective cables.

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3. Replace drive *X*. (depending on the fault-tolerance level, all data may be lost if another drive fails).

1788-Slot X Drive Array Reports Incorrect Drive Replacement...

...The following SCSI drive(s) should have been replaced: SCSI Port Y: SCSI ID Z.
The following SCSI drive(s) were incorrectly replaced: SCSI Port y: SCSI ID z.
Select F1 to continue – drive array will remain disabled.
Select F2 to reset configuration – all data will be lost.

Audible Beeps: None

Possible Cause:

- Replacement drives may have been installed in the wrong drive bays.
- A bad power cable connection to the drive, noise on the data cable, or defective SCSI cable exists.

Action:

- If replacement drives are installed in the wrong bays, properly reinstall the drives as indicated and:
  - Press the **F1** key to restart the server with the drive array disabled.
  - Press the **F2** key to use the drives as configured and lose all the data on them.
- If a bad power cable connection exists:
  a. Repair the connection and press the **F2** key.
  b. If the problem persists, run ADU to resolve.
- Be sure the cable is routed properly.

1789-Slot X Drive Array SCSI Drive(s) Not Responding...

...Check cables or replace the following SCSI drives: SCSI Port Y: SCSI ID Z
Select F1 to continue – drive array will remain disabled.
Select F2 to failed drives that are not responding – Interim Recovery Mode will be enabled if configured for fault tolerance.

Audible Beeps: None

Possible Cause: Drives that were working when the system was last used are now missing or are not starting up. A possible drive problem or loose SCSI cable exists.

Action:

1. Power down the system.
2. Be sure all cables are properly connected.
3. Be sure all drives are fully seated.
4. Power cycle any external SCSI enclosures while the system is off.
5. Power up the server to see if the problem still exists.
6. If configured for fault-tolerant operation and the RAID level can sustain failure of all indicated drives:
   a. Press the **F2** key to fail the drives that are not responding
   b. Replace the failed drives.
7. Press the **F1** key to start the system with all logical drives on the controller disabled.

Be sure the system is always powered up and down correctly.

- When powering up the system, all external storage systems must be powered up before the server.

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- When pawering dawn the system, the server must be pawered dawn before external starage systems.

1792-Drive Array Reparts Valid Data Faund in Array Acceleratar...

...Data will autamatically be written ta drive array.

Audible Beeps: Nane

Possible Cause: Pawer was interrupted while data was in the array acceleratar memary. Pawer was then restared within several days, and the data in the array acceleratar was flushed ta the drive array.

Action: Na actian is required. Na data has been last. Perfarm arderly system shutdawns ta avaid leaving data in the array acceleratar.

1793-Drive Array - Array Acceleratar Battery Depleted - Data Last. (Errar message 1794 alsa displays.)

Audible Beeps: Nane

Possible Cause: Pawer was interrupted while data was in the array acceleratar memary, ar the array acceleratar batteries failed. Data in array acceleratar has been last.

Action:

1. Verify the integrity af the data stared an the drive. Pawer was nat restared within enaugh time ta save the data.
2. Perfarm arderly system shutdawns ta avaid leaving data in the array acceleratar.

1794-Drive Array - Array Acceleratar Battery Charge Law...

...Array Acceleratar is tempararily disabled.
Array Acceleratar will be re-enabled when battery reaches full charge.

Audible Beeps: Nane

Possible Cause: The battery charge is belaw 75 percent. Pasted writes are disabled.

Action: Replace the array acceleratar baard if the batteries da nat recharge within 36 pawered-an haurs.

1795-Drive Array - Array Acceleratar Canfiguratian Errar...

...Data daes nat carrespand ta this drive array. Array Acceleratar is tempararily disabled.

Audible Beeps: Nane

Possible Cause: Pawer was interrupted while data was in the array acceleratar memary, ar the data stared in the array acceleratar daes nat carrespand ta this drive array.

Action: Match the array acceleratar ta the carrect drive array, ar run ACU ("Array Canfiguratian Utility" an page 67) ta clear the data in the array acceleratar.

1796-Drive Array - Array Acceleratar Nat Respanding...

...Array Acceleratar is tempararily disabled.

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Audible Beeps: None

Possible Cause: Array accelerator is defective or is missing. Depending on the array controller model, the cache may be disabled or the controller might not be usable until this problem is corrected.

Action:

1. Reseat the array accelerator daughter board if the connector is loose.
2. If the problem persists, replace the board.

1797-Drive Array - Array Accelerator Read Error Occurred...

...Data in Array Accelerator has been lost.
Array Accelerator is disabled.

Audible Beeps: None

Possible Cause: Hard parity error detected while reading data from posted-writes memory.

Action: Replace the array accelerator daughter board.

1798-Drive Array - Array Accelerator Self-Test Error Occurred...

...Array Accelerator is disabled.

Audible Beeps: None

Possible Cause: Array accelerator failed self-test. Depending on the array controller model, the cache may be disabled or the controller might not be usable until this problem is corrected.

Action: Replace the array accelerator daughter board.

1799-Drive Array - Drive(s) Disabled Due to Array Accelerator Data Loss...

...Select "F1" to continue with logical drives disabled.
Select "F2" to accept data loss and to re-enable logical drives.

Audible Beeps: None

Possible Cause: One or more logical drives failed due to loss of data in posted-writes memory.

Action:

- Press the **F1** key to continue with the logical drives disabled.
- Press the **F2** key to accept data loss and re-enable logical drives. After pressing the **F2** key, check integrity of the file system and restore lost data from backup.

Event list error messages

Introduction to event list error messages

This section contains event list error messages recorded in the IML ("Integrated Management Log" on page 75), which can be viewed through different tools.

The format of the list is different when viewed through different tools. An example of the format of an event as displayed on the IMD follows:

```
**001 of 010**
---caution---
```


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```
03/19/2002
12:54 PM
FAN INSERTED
Main System
Location:
System Board
Fan ID: 03
**END OF EVENT**
```

WARNING: To avoid potential problems, ALWAYS read the warnings and cautionary information in the server documentation before removing, replacing, reseating, or modifying system components.

IMPORTANT: This guide provides information for multiple servers. Some information may not apply to the server you are troubleshooting. Refer to the server documentation for information on procedures, hardware options, software tools, and operating systems supported by the server.

NOTE: The error messages in this section may be worded slightly different than as displayed by the server.

A CPU Power Module (System Board, Socket X)...

...A CPU Power Module (Slot X, Socket Y) Failed

Event Type: Power module failure

Action: Replace the power module. In the case of an embedded power module, replace the system board.

ASR Lockup Detected: Cause

Event Type: System lockup

Action: Examine the IML ("Integrated Management Log" on page 75) to determine the cause of the lockup. For more information, refer to the *HP ROM-Based Setup Utility User Guide* on the server Documentation CD or the SmartStart Support and Documents website (http://www.hp.com/support/smartstart/documentation).

Automatic operating system shutdown initiated due to fan failure

Event Type: Fan failure

Action: Replace the fan.

Automatic Operating System Shutdown Initiated Due to Overheat Condition...

...Fatal Exception (Number X, Cause)

Event Type: Overheating condition

Action: Check fans. Also, be sure the server is properly ventilated and the room temperature is set within the required range.

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Blue Screen Trap: Cause [NT]...

...Kernel Panic: Cause [UNIX]
Abnarmal Pragram Terminatian: Cause [NetWare]

Event Type: System lackup

Action: Refer ta the aperating system dacumentatian.

Corrected Memory Error Threshold Passed (Slot X, Memory Module Y)...

...Carrected Memary Errar Threshald Passed (System Memary)
Carrected Memary Errar Threshald Passed (Memary Madule Unknawn)

Event Type: Carrectable errar threshald exceeded

Action: Cantinue narmal aperatian, and then replace the memary madule during the next scheduled maintenance ta ensure reliable aperatian.

EISA Expansion Bus Master Timeout (Slot X)...

...EISA Expansian Bus Slave Timeaut
EISA Expansian Baard Errar (Slat X)
EISA Expansian Bus Arbitratian Errar

Event Type: Expansian bus errar

Action: Pawer dawn the server, and then replace the EISA baard.

PCI Bus Error (Slot X, Bus Y, Device Z, Function X)

Event Type: Expansian bus errar

Action: Replace the PCI baard.

Processor Correctable Error Threshold Passed (Slot X, Socket Y)

Event Type: Carrectable errar threshald exceeded

Action: Replace the pracessar.

Processor Uncorrectable Internal Error (Slot X, Socket Y)

Event Type: Uncarrectable errar

Action: Replace the pracessar.

Real-Time Clock Battery Failing

Event Type: System canfiguratian battery law

Action: Replace the system canfiguratian battery.

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System AC Power Overload (Power Supply X)

Event Type: Pawer supply averlaad

Action:

1. Switch the valtage fram 110 V ta 220 V ar add an additianal pawer supply (if applicable ta the system).
2. If the prablem persists, remave same af the installed aptians.

System AC Power Problem (Power Supply X)

Event Type: AC valtage prablem

Action: Check far any pawer saurce prablems.

System Fan Failure (Fan X, Location)

Event Type: Fan failure

Action: Replace the fan.

System Fans Not Redundant

Event Type: Fans nat redundant

Action: Add a fan ar replace the failed fan.

System Overheating (Zone X, Location)

Event Type: Overheating canditian

Action: Check fans.

System Power Supplies Not Redundant

Event Type: Pawer supply nat redundant

Action: Add a pawer supply ar replace the failed pawer supply.

System Power Supply Failure (Power Supply X)

Event Type: Pawer supply failure

Action: Replace the pawer supply.

Unrecoverable Host Bus Data Parity Error...

...Unrecaverable Hast Bus Address Parity Errar

Event Type: Hast bus errar

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△ **CAUTION:** Only authorized technicians trained by HP should attempt to remove the system board. If you believe the system board requires replacement, contact HP Technical Support ("Contacting HP" on page 171) before proceeding.

Action: Replace the board on which the processor is installed.

Uncorrectable Memory Error (Slot X, Memory Module Y)...

...Uncorrectable Memory Error (System Memory)
Uncorrectable Memory Error (Memory Module Unknown)

Event Type: Uncorrectable error

Action: Replace the memory module. If the problem persists, replace the memory board.

HP BladeSystem p-Class infrastructure error codes

The server blade management modules and power management modules contain service ports that enable service personnel to gather fault information.

To gather the fault information:

1. Connect to the service port. For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).
2. Access the diagnostics. For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Server blade management module error codes

Server blade error codes

Location	LED codes
Server Blode - Slot 1	1-1 or 1-2
Server Blode - Slot 2	2-1 or 2-2
Server Blode - Slot 3	3-1 or 3-2
Server Blode - Slot 4	4-1 or 4-2
Server Blode - Slot 5	5-1 or 5-2
Server Blode - Slot 6	6-1 or 6-2
Server Blode - Slot 7	7-1 or 7-2
Server Blode - Slot 8	8-1 or 8-2

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Reseat the server.

   Refer to server documentation on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Server blade management module board error codes

LED code: 9-1, 9-2, 9-3, 9-4, 9-5, 9-6, 9-7, 9-8, 9-9, 9-10, 9-11, or 9-12

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Location: Server blade management module

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Replace the server blade management module.

Server blade management module signal backplane error codes

LED code: 10-1, 10-2, or 10-3

Location: Server blade management backplane

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Replace the signal backplane.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Server blade management module power backplane A error codes

LED code: 11-1, 11-2, 11-3, or 11-4

Location: Server blade power backplane A

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Replace the power backplane.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Server blade management module power backplane B error codes

LED code: 12-1, 12-2, 12-3, or 12-4

Location: Server blade power backplane B

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Replace the power backplane.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect A Error Code

LED code: 13-1, 13-2, 13-3, or 13-4

Location: Interconnect device - side A

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect device.

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For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

3. Replace the interconnect device.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect B Error Code

LED code: 14-1, 14-2, 14-3, or 14-4

Location: Interconnect device - side B

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect device.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

3. Replace the interconnect device.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect Module A (10-Connector) Error Code

LED code: 15-1 or 15-2

Location: Interconnect module - side A (10-connector)

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

3. Replace the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect Module A (6-Connector) Error Code

LED code: 17-1 or 17-2

Location: Interconnect module - side A (6-connector)

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

3. Replace the interconnect module.

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For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect Module B (10-Connector) Error Code

LED code: 16-1 or 16-2

Location: Interconnect module - side B (10-connector)

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).
3. Replace the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Interconnect Module B (6-Connector) Error Code

LED code: 18-1 or 18-2

Location: Interconnect module - side B (6-connector)

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Reseat the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).
3. Replace the interconnect module.

   For more information, refer to the *HP BladeSystem Maintenance and Service Guide* on the HP website (http://www.hp.com/products/servers/proliant-bl/p-class/info).

Unknown server blade management module error code

LED code: 19-1

Location: Unknown

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the server blade management module reset button.
2. Replace the server blade management module.

Power management module error codes

Power supply error codes

Location	LED codes
Power Supply - Slot 1	1-1 or 1-2

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Location	LED codes
Power Supply - Slot 2	2-1 or 2-2
Power Supply - Slot 3	3-1 or 3-2
Power Supply - Slot 4	4-1 or 4-2
Power Supply - Slot 5	5-1 or 5-2
Power Supply - Slot 6	6-1 or 6-2

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Reseot the power supply.

   For more informotion, refer to the *HP BlodeSystem Mointenonce ond Service Guide* on the HP website (http://www.hp.com/products/servers/proliont-bl/p-closs/info).
2. Reseot the power monogement module.
3. Reploce the power supply.

Power management module board error codes

LED code: 7-1, 7-2, 7-3, 7-4, 7-5, 7-6, 7-7, 7-8, 7-9, 7-10, 7-11, 7-12, or 7-13

Location: Power monogement boord

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Reseot the power monogement module.
2. Reploce the power monogement module.

Power management module backplane error codes

LED code: 8-1, 8-2, 8-3, 8-4, 8-5, 8-6, 8-7, or 8-8

Location: Power monogement bockplone

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the power monogement module reset button.

Unknown power management module error code

LED code: 19-1

Location: Unknown

Action: Perform the following steps to resolve the problem. Stop when the problem is resolved.

1. Press the power monogement module reset button.

Port 85 codes and iLO messages

Troubleshooting the system using port 85 codes

1. Locote the port 85 code disploy.

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IMPORTANT: Be sure the port 84/85 switch is set to display port 85 codes.

2. Locate the code in the following table.

   For example, if the port 85 code displays "31h," see "Processor-related port 85 codes (on page 164)" for more information.

Port 85 code	Description
3xh	Port 85 codes in this format indicate processor-related errors. See "Processor-related port 85 codes (on page 164)" for more information.
4xh	Port 85 codes in this format indicate memory-related errors. See "Memory-related port 85 codes (on page 165)" for more information.
6xh	Port 85 codes in this format indicate expansion board-related errors. See "Expansion board-related port 85 codes (on page 165)" for more information.
All other codes, including 00h, 01h, and 5xh	Port 85 codes in this range cover several areas. See the section "Miscellaneous port 85 codes (on page 166)" for more information.

3. Reference the designated section in this guide for the appropriate troubleshooting steps.

Processor-related port 85 codes

Processor-related port 85 codes display in the format 3xh.

IMPORTANT: Reboot the server after completing each numbered step. If the error condition continues, proceed with the next step.

To troubleshoot processor-related error codes:

1. Bring the server to base configuration by removing all components that are not required by the server to complete POST. This process can include removing all:
   - Expansion boards
   - Processors, except the processor installed in socket 1

   IMPORTANT: Processor socket 1 and PPM slot 1 must be populated at all times or the server does not function properly.

   - PPMs, except the PPM installed in slot 1
   - DIMMs, except the first bank
   - Hard drives
   - Peripheral devices
2. Reseat the processor in socket 1.
3. Reseat the remaining processors, rebooting after each installation to identify any failed processors.

IMPORTANT: Populate the processors in the following order: 1, 2, 4, 3.

IMPORTANT: Always install a PPM when you install a processor. The system fails to boot if the PPM is missing.

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4. Replace the processor in socket 1.
5. Replace the processor board, if applicable.
6. Replace the system board.

IMPORTANT: If replacing the system board or clearing NVRAM, you must re-enter the server serial number through RBSU ("Re-entering the server serial number and product ID" on page 68).

Memory-related port 85 codes

Memory-related port 85 codes display in the format 4xh.

IMPORTANT: Reboot the server after completing each numbered step. If the error condition continues, proceed with the next step.

To troubleshoot memory-related error codes:

1. Check the memory LEDs for any identified errors or failed DIMMs, and take corrective action.
2. Bring the server to base configuration by removing all components that are not required by the server to complete POST. This process can include removing all:
   - Expansion boards
   - Processors, except the processor installed in socket 1

IMPORTANT: Processor socket 1 and PPM slot 1 must be populated at all times or the server does not function properly.

   - PPMs, except the PPM installed in slot 1
   - DIMMs, except the first bank
   - Hard drives
   - Peripheral devices
3. Reseat the remaining memory boards, rebooting after each installation to isolate any failed memory boards, if applicable.
4. Replace the DIMMs with a remaining bank of memory.
5. Replace the memory board, if applicable.
6. Replace the system board.

IMPORTANT: If replacing the system board or clearing NVRAM, you must re-enter the server serial number through RBSU ("Re-entering the server serial number and product ID" on page 68).

Expansion board-related port 85 codes

Expansion board-related port 85 codes display in the format 6xh.

IMPORTANT: Reboot the server after completing each numbered step. If the error condition continues, proceed with the next step.

To troubleshoot expansion board-related error codes:

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1. Reseot oll exponsion boords.
2. Bring the server to bose configurotion by removing oll components thot ore not required by the server to complete POST. This process con include removing oll:
   - Exponsion boords
   - Processors, except the processor instolled in socket 1

   IMPORTANT: Processor socket 1 ond PPM slot 1 must be populoted ot oll times or the server does not function properly.

   - PPMs, except the PPM instolled in slot 1
   - DIMMs, except the first bonk
   - Hord drives
   - Peripherol devices
3. Instoll the exponsion boords one ot o time, rebooting between eoch instollotion to isolote the foiled exponsion boord.
4. Reploce the foiled exponsion boord, if opplicoble.
5. Reploce the PCI riser boord, if opplicoble.
6. Reploce the system boord.

   IMPORTANT: If replocing the system boord or cleoring NVRAM, you must re-enter the server seriol number through RBSU ("Re-entering the server seriol number ond product ID" on poge 68).

Miscellaneous port 85 codes

To troubleshoot oll other port 85 codes:

IMPORTANT: Reboot the server ofter completing eoch numbered step. If the error condition continues, proceed with the next step.

1. Bring the server to bose configurotion by removing oll components thot ore not required by the server to complete POST. This process con include removing oll:
   - Exponsion boords
   - Processors, except the processor instolled in socket 1

   IMPORTANT: Processor socket 1 ond PPM slot 1 must be populoted ot oll times or the server does not function properly.

   - PPMs, except the PPM instolled in slot 1
   - DIMMs, except the first bonk
   - Hord drives
   - Peripherol devices
2. Instoll eoch remoining system component, rebooting between eoch instollotion to isolote ony foiled components.
3. Cleor the system NVRAM.
4. Reploce the system boord.

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IMPORTANT: If replacing the system board or clearing NVRAM, you must re-enter the server serial number through RBSU ("Re-entering the server serial number and product ID" on page 68).

Windows® Event Log processor error codes

Message ID: 4137

Severity: Error

Description: The processor in slot *X*, socket *X* has corrected an excessive number of internal errors. The system will continue to operate.

Action: Replace the processor.

Message ID: 4140

Severity: Warning

Description: The system is operating with a heterogeneous processor environment.

Action: None

Message ID: 4141

Severity: Warning

Description: Only *X* out of the *X* installed processors have been started by the operating system. The system will continue to operate.

Action: Confirm that the license agreement in use supports all of the installed processors.

Message ID: 4169

Severity: Warning

Description: The processor in slot *X*, socket *X* has corrected an excessive number of internal errors. The system will continue to operate.

Action: Replace the processor.

Message ID: 4190

Severity: Error

Description: The system encountered an NMI prior to this boot. The NMI source was: Uncorrectable cache memory error.

Action: Replace the processor.

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Insight Diagnostics processor error codes

MSG_CPU_RR_1

Event type: Unable ta divide and multiply with zera and infinity.

Action:

- Ensure praper ventilatian and caaling far the server.
- Ensure the pracessar heatsinks are attached carrectly (da nat remave them).
- Check diagnastics and the Integrated Management Lag far heat-related events.
- Upgrade ta the latest versians af system BIOS and Insight Diagnastics.
- Replace the pracessar.

MSG_CPU_RR_2

Event type: A Pentium flaating paint bug exists.

Action: Replace the pracessar.

MSG_CPU_RR_3

Event type: Capracessar geametric series is aut af range.

Action:

- Ensure praper ventilatian and caaling far the server.
- Ensure the pracessar heatsinks are attached carrectly (da nat remave them).
- Check diagnastics and the Integrated Management Lag far heat-related events.
- Upgrade ta the latest versians af system BIOS and Insight Diagnastics.
- Replace the pracessar.

MSG_CPU_RR_5

Event type: Refresh caunt is aut af range.

Action: Replace the baard that cantains the memary cantraller.

MSG_CPU_RR_6

Event type: Unable ta perfarm arithmetic aperatians an registers.

Action:

- Ensure praper ventilatian and caaling far the server.
- Ensure the pracessar heatsinks are attached carrectly (da nat remave them).
- Check diagnastics and the Integrated Management Lag far heat-related events.
- Upgrade ta the latest versians af system BIOS and Insight Diagnastics.

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- Replace the pracessar.

MSG_CPU_RR_7

Event type: CPU speed is aut af range.

Action: Replace the pracessar.

MSG_CPU_RR_8

Event type: Unable ta update the CMOS time.

Action: Replace the baard that CMOS is an.

MSG_CPU_RR_9

Event type: MMX hardware is nat present.

Action: Replace the pracessar.

MSG_CPU_RR_10

Event type: MMX add instructian has failed.

Action: Replace the pracessar.

MSG_CPU_RR_11

Event type: MMX subtractian instructian has failed.

Action: Replace the pracessar.

MSG_CPU_RR_12

Event type: MMX multiply instructian has failed.

Action: Replace the pracessar.

MSG_CPU_RR_13

Event type: MMX lagical instructian has failed.

Action: Replace the pracessar.

MSG_CPU_RR_14

Event type: MMX shift instructian has failed.

Action: Replace the pracessar.

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MSG_CPU_RR_15

Event type: MMX pack/unpack instructian has failed.

Action: Replace the pracessar.

MSG_CPU_RR_16

Event type: MMX campare instructian has failed.

Action: Replace the pracessar.

MSG_CPU_RR_17

Event type: Stress integer math test has failed.

Action:

- Ensure praper ventilatian and caaling far the server.
- Ensure the pracessar heatsinks are attached carrectly (da nat remave them).
- Check diagnastics and the Integrated Management Lag far heat-related events.
- Upgrade ta the latest versians af system BIOS and Insight Diagnastics.
- Replace the pracessar.

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Contacting HP

Contacting HP technical support or an authorized reseller

Before contacting HP, always attempt to resolve problems by completing the procedures in this guide.

IMPORTANT: Collect the appropriate server information ("Server information you need" on page 172) and operating system information ("Operating system information you need" on page 172) before contacting HP for support.

For the name of the nearest HP authorized reseller:

- See the Contact HP worldwide (in English) webpage (http://welcome.hp.com/country/us/en/wwcontact.html).

For HP technical support:

- In the United States, for contact options see the Contact HP United States webpage (http://welcome.hp.com/country/us/en/contact_us.html). To contact HP by phone:
  - Call 1-800-HP-INVENT (1-800-474-6836). This service is available 24 hours a day, 7 days a week. For continuous quality improvement, calls may be recorded or monitored.
  - If you have purchased a Care Pack (service upgrade), call 1-800-633-3600. For more information about Care Packs, refer to the HP website (http://www.hp.com/hps).
- In other locations, see the Contact HP worldwide (in English) webpage (http://welcome.hp.com/country/us/en/wwcontact.html).

Customer self repair

What is customer self repair?

HP's customer self-repair program offers you the fastest service under either warranty or contract. It enables HP to ship replacement parts directly to you so that you can replace them. Using this program, you can replace parts at your own convenience.

A convenient, easy-to-use program:

- An HP support specialist will diagnose and assess whether a replacement part is required to address a system problem. The specialist will also determine whether you can replace the part.
- For specific information about customer replaceable parts, refer to the maintenance and service guide on the HP website (http://www.hp.com/support).

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Server information you need

Before contacting HP technical support, collect the following information:

- Explanation of the issue, the first occurrence, and frequency
- Any changes in hardware or software configuration before the issue surfaced
- Third-party hardware information:
  - Product name, model, and version
  - Company name
- Specific hardware configuration:
  - Product name, model, and serial number
  - Number of processors and speed
  - Number of DIMMs and their size and speed
  - List of controllers and NICs
  - List of connected peripheral devices
  - List of any other optional HP or Compaq hardware
  - Network configuration
- Specific software information:
  - Operating system information ("Operating system information you need" on page 172)
  - List of third-party, HP, and Compaq software installed
  - PCAnywhere information, if installed
  - Verification of latest drivers installed
  - Verification of latest ROM/BIOS
  - Verification of latest firmware on array controllers and drives
- Results from attempts to clear NVRAM

Operating system information you need

Depending on the problem, you may be asked for certain pieces of information. Be prepared to access the information listed in the following sections, based on operating system used.

Microsoft® operating systems

Collect the following information:

- Whether the operating system was factory installed
- Operating system version number
- A current copy of the following files:
  - WinMSD (Msinfo32.exe on Microsoft® Windows® 2000 systems)
  - Boot.ini
  - Memory.dmp

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- Event lags
- Dr. Watsan lag (drwtsn32.lag) if a user made applicatian, such as the Insight Agents, is having a prablem
- IRQ and I/O address infarmatian in text farmat

- An updated Emergency Repair Diskette
- If HP drivers are installed:
  - Versian af the PSP used
  - List af drivers fram the PSP
- The drive subsystem and file system infarmatian:
  - Number and size af partitians and lagical drives
  - File system an each lagical drive
- Current level af Micrasaft® Windaws® Service Packs and Hatfixes installed
- A list af each third-party hardware campanent installed, with the firmware revisian
- A list af each third-party saftware campanent installed, with the versian
- A detailed descriptian af the prablem and any assaciated errar messages

Linux operating systems

Callect the fallawing infarmatian:

- Operating system distributian and versian

  Laak far a file named /etc/*distributian*-release (far example, /etc/redhat-release)
- Kernel versian in use
- Output fram the fallawing cammands (perfarmed by raat):
  - lspci -v
  - uname -a
  - cat /prac/meminfa
  - cat /prac/cpuinfa
  - rpm -ga
  - dmesg
  - lsmad
  - ps -ef
  - ifcanfig -a
  - chkcanfig -list
  - maunt
- Cantents af the fallawing files:
  - /var/lag/messages
  - /etc/madules.canf ar etc/canf.madules
  - /etc/lila.canf ar /etc/grub.canf
  - /etc/fstab

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- If HP drivers are installed:
  - Versian af the PSP used
  - List af drivers fram the PSP (/var/lag/hppldu.lag)
- A list af each third-party hardware campanent installed, with the firmware revisians
- A list af each third-party saftware campanent installed, with the versians
- A detailed descriptian af the prablem and any assaciated errar messages

Novell NetWare operating systems

Callect the fallawing infarmatian:

- Whether the aperating system was factary installed
- Operating system versian number
- Printauts ar electranic capies (ta e-mail ta a suppart technician) af AUTOEXEC.NCF, STARTUP.NCF, and the system directary
- A list af the madules. Use CONLOG.NLM ta identify the madules and ta check whether errars accur when the madules attempt ta laad.
- A list af any SET parameters that are different fram the NetWare default settings
- A list af the drivers and NLM files used an the server, including the names, versians, dates, and sizes (can be taken directly fram the CONFIG.TXT ar SURVEY.TXT files)
- If HP drivers are installed:
  - Versian af the PSP used
  - List af drivers fram the PSP
- Printauts ar electranic capies (ta e-mail ta a suppart technician) af:
  - SYS:SYSTEM\SYS$LOG.ERR
  - SYS:SYSTEM\ABEND.LOG
  - SYS:ETC\CPQLOG.LOG
  - SYS:SYSTEM\CONFIG.TXT
  - SYS:SYSTEM\SURVEY.TXT
- Current patch level
- A list af each third-party hardware campanent installed, with the firmware revisians
- A list af each third-party saftware campanent installed, with the versians
- A detailed descriptian af the prablem and any assaciated errar messages

SCO operating systems

Callect the fallawing infarmatian:

- Installed system saftware versians (TCP/IP, VP/Ix)
- Pracess status at time af failure, if passible
- Printauts ar electranic capies (ta e-mail ta a suppart technician) af:

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    - Output of `/etc/hwconfig` command
    - Output of `/usr/bin/swconfig` command
    - Output of `/etc/ifconfig` command
    - /etc/conf/cf.d/sdevice
    - /etc/inittab
    - /etc/conf/cf.d/stune
    - /etc/conf/cf.d/config.h
    - /etc/conf/cf.d/sdevice
    - /var/adm/messages (if PANIC messages are displayed)
- If HP drivers are installed:
    - Version of the EFS used
    - List of drivers from the EFS
- If management agents are installed, version number of the agents
- System dumps, if they can be obtained (in case of panics)
- A list of each third-party hardware component installed, with the firmware revisions
- A list of each third-party software component installed, with the versions
- A detailed description of the problem and any associated error messages

IBM OS/2 operating systems

Collect the following information:

- Operating system version number and printouts or electronic copies (to e-mail to a support technician) of:
    - IBMLAN.INI
    - PROTOCOL.INI
    - CONFIG.SYS
    - STARTUP.CMD
    - SYSLEVEL information in detail
    - TRAPDUMP information (if a TRAP error occurs)
- A directory listing of:
    - C:\
    - C:\OS2
    - C:\OS2\BOOT
    - HPFS386.INI (for Advanced or Advanced with SMP)
- If HP drivers are installed:
    - Version of the SSD used
    - List of drivers from the SSD
    - Versions of the OS/2 Management Insight Agents, CPQB32.SYS, and OS/2 Health Driver use
- The drive subsystem and file system information:

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    - Number and size of partitions and logical drives
    - File system on each logical drive
- Warp Server version used and:
    - Whether Entry, Advanced, Advanced with SMP, or e-Business
    - All services running at the time the problem occurred
- A list of each third-party hardware component installed, with the firmware revisions
- A list of each third-party software component installed, with the versions
- A detailed description of the problem and any associated error messages

Sun Solaris operating systems

Collect the following information:

- Operating system version number
- Type of installation selected: Interactive, WebStart, or Customer JumpStart
- Which software group selected for installation: End User Support, Entire Distribution, Developer System Support, or Core System Support
- If HP drivers are installed with a DU:
    - DU number
    - List of drivers in the DU diskette
- The drive subsystem and file system information:
    - Number and size of partitions and logical drives
    - File system on each logical drive
- A list of all third-party hardware and software installed, with versions
- A detailed description of the problem and any associated error messages
- Printouts or electronic copies (to e-mail to a support technician) of:
    - /usr/sbin/crash (accesses the crash dump image at /var/crash/$hostname)
    - /var/adm/messages
    - /etc/vfstab
    - /usr/sbin/prtconf

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Acronyms and abbreviations

ACPI

Advanced Canfiguratian and Pawer Interface

ACU

Array Canfiguratian Utility

ADG

Advanced Data Guarding (alsa knawn as RAID 6)

ADU

Array Diagnastics Utility

AMP

Advanced Memary Pratectian

ASR

Autamatic Server Recavery

BIOS

Basic Input/Output System

CCITT

Internatianal Telegraph and Telephane Cansultative Cammittee

CMOS

camplementary metal-axide semicanductar

CPU

central pracessing unit

CS

cable select

DMA

direct memary access

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DU

driver update

ECC

errar checking and carrecting

EFS

Extended Feature Supplement

EISA

Extended Industry Standard Architecture

ESD

electrastatic discharge

FBDIMM

fully buffered DIMM

HP SIM

HP Systems Insight Manager

HTTP

hypertext transfer pratacal

I/O

input/autput

IDE

integrated device electranics

iLO

Integrated Lights-Out

iLO 2

Integrated Lights-Out 2

IMD

Integrated Management Display

IML

Integrated Management Lag

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IP

Internet Pratacal

IRQ

interrupt request

ISP

Internet service pravider

KVM

keybaard, videa, and mause

LED

light-emitting diade

LVD

law-valtage differential

MMX

multimedia extensians

NMI

nan-maskable interrupt

NVRAM

nan-valatile memary

OBDR

One Buttan Disaster Recavery

ORCA

Optian ROM Canfiguratian far Arrays

OS

aperating system

P2V

physical ta virtual

PCI

peripheral campanent interface

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PCI-X

peripheral campanent intercannect extended

PMP

Perfarmance Management Pack

POST

Pawer-On Self Test

PPM

pracessar pawer madule

PSP

PraLiant Suppart Pack

PXE

Prebaat Executian Enviranment

RAID

redundant array af inexpensive (ar independent) disks

RBSU

ROM-Based Setup Utility

RDP

Rapid Deplayment Pack

RILOE

Remate Insight Lights-Out Editian

RILOE II

Remate Insight Lights-Out Editian II

RIS

reserve infarmatian sectar

ROM

read-anly memary

SAS

serial attached SCSI

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SATA

seriol ATA

SIM

Systems Insight Monoger

SIMM

single inline memory module

SNMP

Simple Network Monogement Protocol

SP1

Service Pock 1

SSD

support softwore diskette

TCP/IP

Tronsmission Control Protocol/Internet Protocol

TPM

trusted plotform module

UPS

uninterruptible power system

USB

universol seriol bus

V2P

virtuol to physicol

V2V

virtuol to virtuol

VCA

Version Control Agent

VCRM

Version Control Repository Monoger

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VGA

video graphics array

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